Philips Car Systems

automotive mannesmann VDO

Car Cassette Deck SCA-R3.3 SCA-R3.1

Service Manual

12 V

1. GENERAL

The SCA-R3.3 is a full-logic Servo Controlled Autoreverse tape deck which is fully µP-controlled.
The deck is controlled by the headset via the standardized I²C bus.
Version -R3.3 is the standard version with an 8-pole MOLEX PICOFLEX interface connector.
The SCA-R3.1 has an 11-pole MOLEX SPOX interface cable.
Mechanically the -R3.1 version is the same as the -R3.3.

2. TECHNICAL DATA

Operating voltages	:	10.0 - 16VDC (V1) (13.2VDC nom.) 4.75 - 5.25VDC (V2) (5.0VDC nom.)
Tape speed	:	4.76 cm/s (-1..+3%)
Number of tracks	:	2 x 2
Wow and Flutter	:	≤ 0.3% DIN weighted
S/N ratio	:	≥ 46dB (measured at preamplifier)
Crosstalk suppression (track 2-3)	:	≥ 50dB
Channel separation (track 1-2/3-4)	:	≥ 40dB
Fast winding time	:	≤ 100 sec (C-60)
Bus interface	:	I²C
Weight (only mechanism)	:	400 g

PCS 92 000

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3. MAINTENANCE

The tape deck mechanism requires periodic cleaning.

3.1 Cleaning cassette

- Use drop-in cleaning cassette SBC114 (4822 389 20035)

3.2 Cleaning with alcohol or spirit

- Cleaning with alcohol or spirit is also possible.
- Especially the following parts need cleaning:
  - Playback head pos. 28.
  - Capstans pos. 9/11 and pressure roller assy pos. 42.
  - Pulley pos. 10 and motor pulley.

4. ADJUSTMENTS AND CHECKS

4.1 Equipment

Equipment required:

- Universal test cassette SBC419 - 4822 397 30069
- Universal test cassette SBC420 - 4822 397 30071
- Friction test cassette 811/CTM - 4822 395 30054
- Spring scale 50-500g - 4822 395 80028
- Jig / puller for clutch 4822 395 60039
- Wow & Flutter meter
- AC mV meters

4.2 Roller pressure

The pressure on the capstan should be 250 - 350 grammes (2.5 - 3.5 N).
This pressure is measured as follows (in NOR and REV play):

- Select NOR play mode.
- Push the back pressure roller spindle of pos. 42 back by means of the spring scale.
- The back pressure roller can be reached via the opening at the rear of the deck (see figure i).

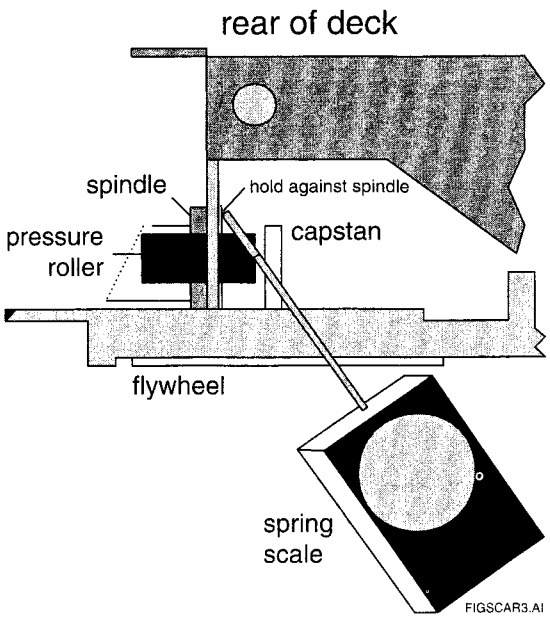


Figure i

- At the point where the pressure roller and capstan (of flywheel pos. 11) just disengage the spring scale should be read.
- If the pressure is incorrect, replace roller assy.
- Select REV play mode.
- Push the front pressure roller spindle of pos. 42 back by means of the spring scale.
- At the point where the pressure roller and capstan (of flywheel pos. 9) just disengage the spring scale should be read.
- If the pressure is incorrect, replace roller assy.

4.3 Take-up wheels pos. 21

- Insert friction test cassette 811/CTM (NOR and REV).
- Play mode take-up torque should be 3.5 - 7.5 mNm.
- Fast wind torque should be 4 - 15 mNm.
- If the torque is incorrect, replace take-up wheel(s) pos. 21.

4.4 Wow & Flutter / tape speed

This check should be carried out on a COMPLETE car radio set; proceed as follows:

- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 or SBC420 and play the 3,150 Hz signal.
- The wow & flutter value should be ≤ 0.3% (DIN weighted).

- The tape speed should be 4.76 cm/s (-1..+3%).
- The tape speed can be adjusted with the screw of the capstan motor.
- This screw can be reached via the hole in the pcb pos. 86 (see figure ii).
- Use a screw driver of 1.8mm with an insulated shaft.

In case of an excessive wow & flutter value, first clean the deck as described, then check the following parts for correct functioning:

- Motors pos. 1 and 12
- Pressure rollers of pos. 42
- Belt pos. 3
- Flywheels pos. 9 and 11
- Diverting wheel (pulley) pos. 10
- All gears

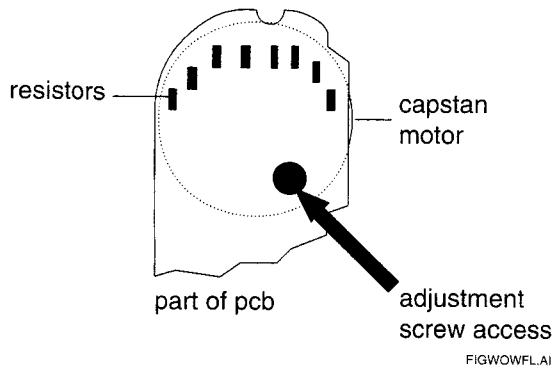


Figure ii

5. DISASSEMBLY PROCEDURE

5.1 Important

Before disassembling the tape deck, take care that the cassette holder pos. 51/52 is in the **eject** position.
Handle the cassette lift assy carefully to prevent bending it.
For re-assembling, follow the procedures in reverse order. Take care that the wires, cams etc. are in the right position again after re-assembling.
For the exact position of the parts, refer to the exploded view.

5.2 Loading position

Take care that the cassette lift and the transport disc pos. 33 are in the right position before to put it in the load position!
Be careful not to bend metal parts unnecessarily and not to damage the flywheels and belt!

5.3 Switches

To remove the

- PLAY switch pos. 100,
- STANDBY switch pos. 101,
- INSERT switch pos. 102 and/or
- ME/CR switch pos. 103,

carefully slide the switch(es) concerned out of the holder.

5.4 Capstan motor pos. 1

- Remove the belt pos. 3.
- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 2.
- Unsolder the capstan motor connections and take out the capstan motor.
- When re-assembling, take care that the cam on the chassis graps in the spare screw hole of the motor.

5.5 Servo motor pos. 12

- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
- Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 14.
- Unsolder the servo motor connections and take out the servo motor.
- When re-assembling, take care that the cam on the chassis graps in the hole of the motor.

5.6 Pressure rollers pos. 42

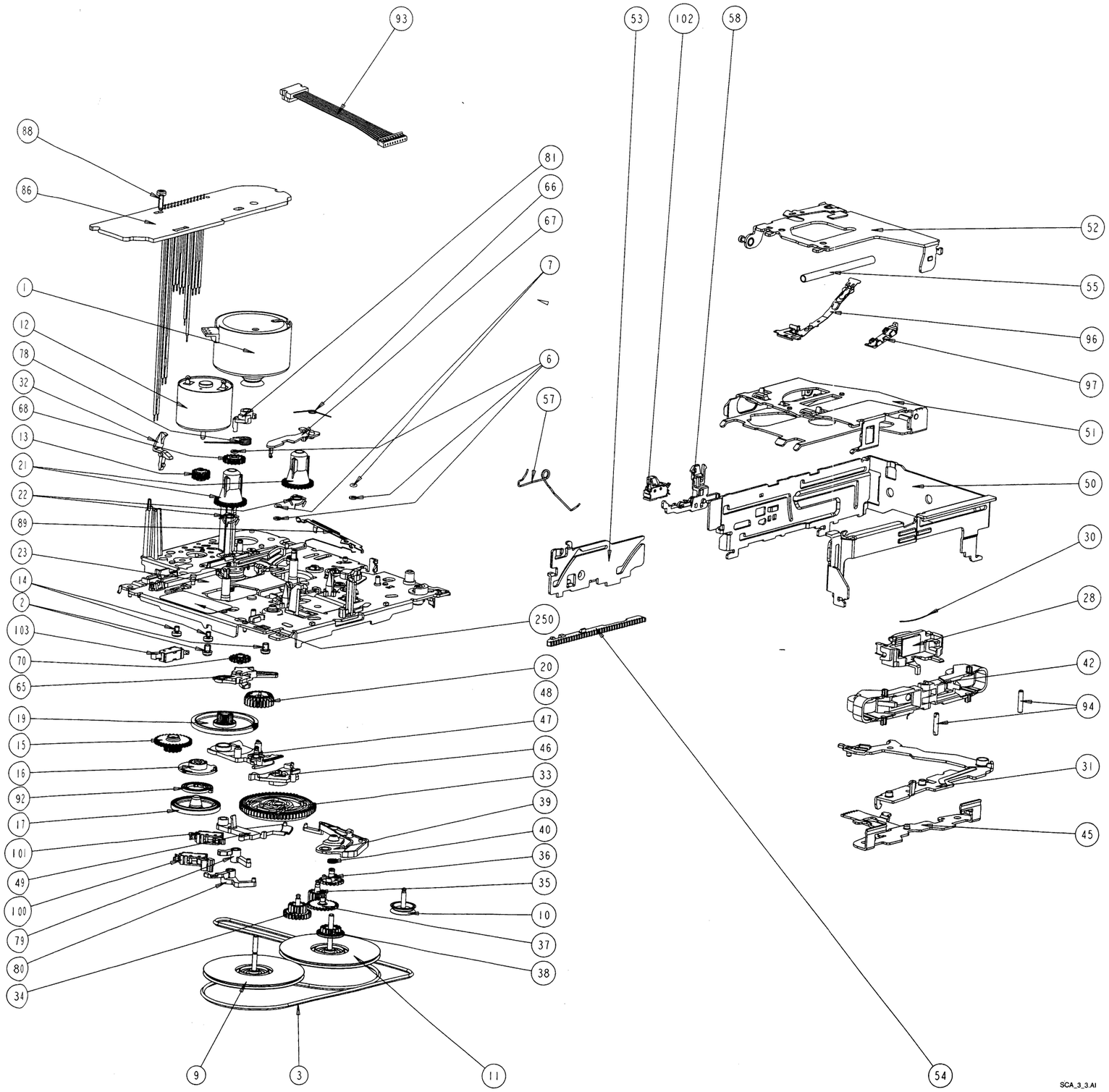
- Remove the holders with the pressure rollers by unclicking them from the centre pivot which is at the right side of the base plate pos. 23.

5.7 Head assy pos. 28

- Remove the pressure roller assy as described in section 5.6.
- Remove the spring pos. 30.
- Remove the head assy from the holder of the base plate pos. 23.

- continued on page 4 -

6. EXPLODED VIEW SCA-R3.3



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5.8 Flywheel / gear assy (NOR) pos. 11

- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 11.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a <u>new</u> retaining ring*, and take care that the gear does not become damaged. Put the flywheel spindle into the bearing carefully and turn it slightly.
- Take out the flywheel.

5.9 Flywheel (REV) pos. 9

- *<u>First</u>* move the cassette holder to the **load** position by turning gear assy pos. 16 to the right.
  Hold the lever on pos. 52 in such a way that the cassette holder is unblocked and can move backward.
- When the cassette holder reaches the load position, the capstan of flywheel pos. 9 can be reached.
- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 9.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a <u>new</u> retaining ring!*
- Take out the flywheel.

5.10 Take-up wheel (NOR) / back tension spring pos. 21

- The cassette holder assy pos. 51/52 must be in the **eject** position.
  If the holder assy isn't yet, turn gear assy pos. 16 to the left.
- When the cassette holder reaches the load position, take-up wheel (NOR) can be reached.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot.

5.11 Take-up wheel (REV) / back tension spring pos. 21

- The cassette holder assy pos. 51/52 must be in the **load** position.
  If the holder assy isn't yet, turn gear assy pos. 16 to the right.
- When the cassette holder reaches the load position, take-up wheel (REV) can be reached.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot.

5.12 Transport disc pos. 33

- Remove belt pos. 3.
- Remove switching lever pos. 49 (*note:* Use the right tools).
- Remove play switch lever pos. 80.
- Remove standby switch lever pos. 79.
- Move the arm of switch lever assy pos. 39 away from the transport disc.
- Remove intermediate wheel pos. 34.
- Take out transport disc with help of the special jig / puller to release the three snaps. Do not damage the post!
- *Note:* the head support should be in the 'standby' position. Grease the head support assy at the right points.

5.13 Switch lever assy pos. 39 / Switch wheel 1 pos. 37

- Remove flywheel (NOR) pos. 11 as described in section 6.
- Remove switch wheel 1 pos. 37 with help of the special jig/puller.
- Take out switch lever assy.

5.14 Gear rod pos. 54 / Lift wheel gear pos. 68

- Remove the cassette loading assy pos. 50 as described before.
- Take out gear rod.
- Remove fixation retaining ring pos. 6.
- *Note: when re-assembling, use a <u>new</u> ring*!
- Take out lift wheel gear.

5.15 Servo drive gear assy

- *Note:* Use the right tools.
- Remove damping gear assy pos. 16.
- Remove switching lever pos. 49.
- Remove swivel level assy pos. 47.
- Take out connection wheel pos. 19.
- Take out gear cluster pos. 15.

Important: when re-assembling, oil the gear bearings.

5.16 Diverting wheel pos. 10

- Remove belt pos. 3.
- Remove the diverting wheel with help of special jig / puller.
- *Note:* When re-assembling, grease the wheel in accordance with the lubrication overview.

5.17 Coupling lever assy pos. 65

- *Note:* the deck should be in the **eject** position!
- Remove damping gear assy pos. 16.
- Remove switch lever assy pos. 39 (see '**5.13**').
- Remove swivel lever assy pos. 47.
- Remove connection wheel assy pos. 19.
- Remove coupling spring pos. 66 and coupling slider pos. 67.
- Take out the coupling lever.

5.18 Re-assembly precautions

When re-assembling the deck, take care of proper mounting of the cassette loading assy.
The cam of the lift plate pos. 53 (A in figure iii) should fall into the sleeve of the loading assy plate of pos. 50.
The other cam B should fall into the notch of the gear rod.
The loading assy plate should match the base plate completely. Bend the three lips back so that the loading assy plate is locked.

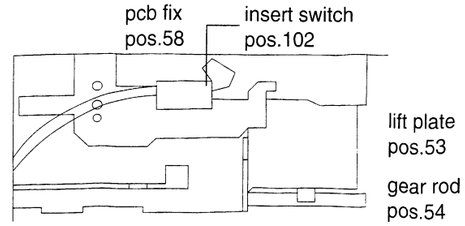


Figure iii

The belt should be mounted as indicated in the figure below.
Take care that the belt is not twisted, not touched by grease and not damaged by sharp edges of the chassis!

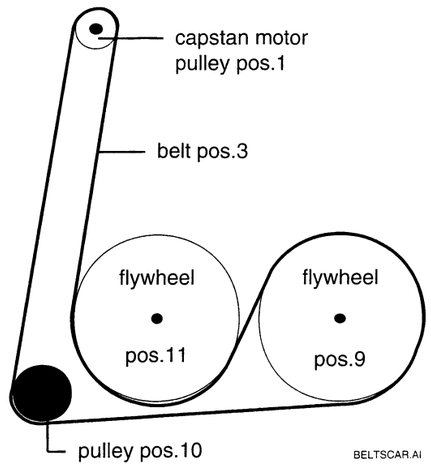
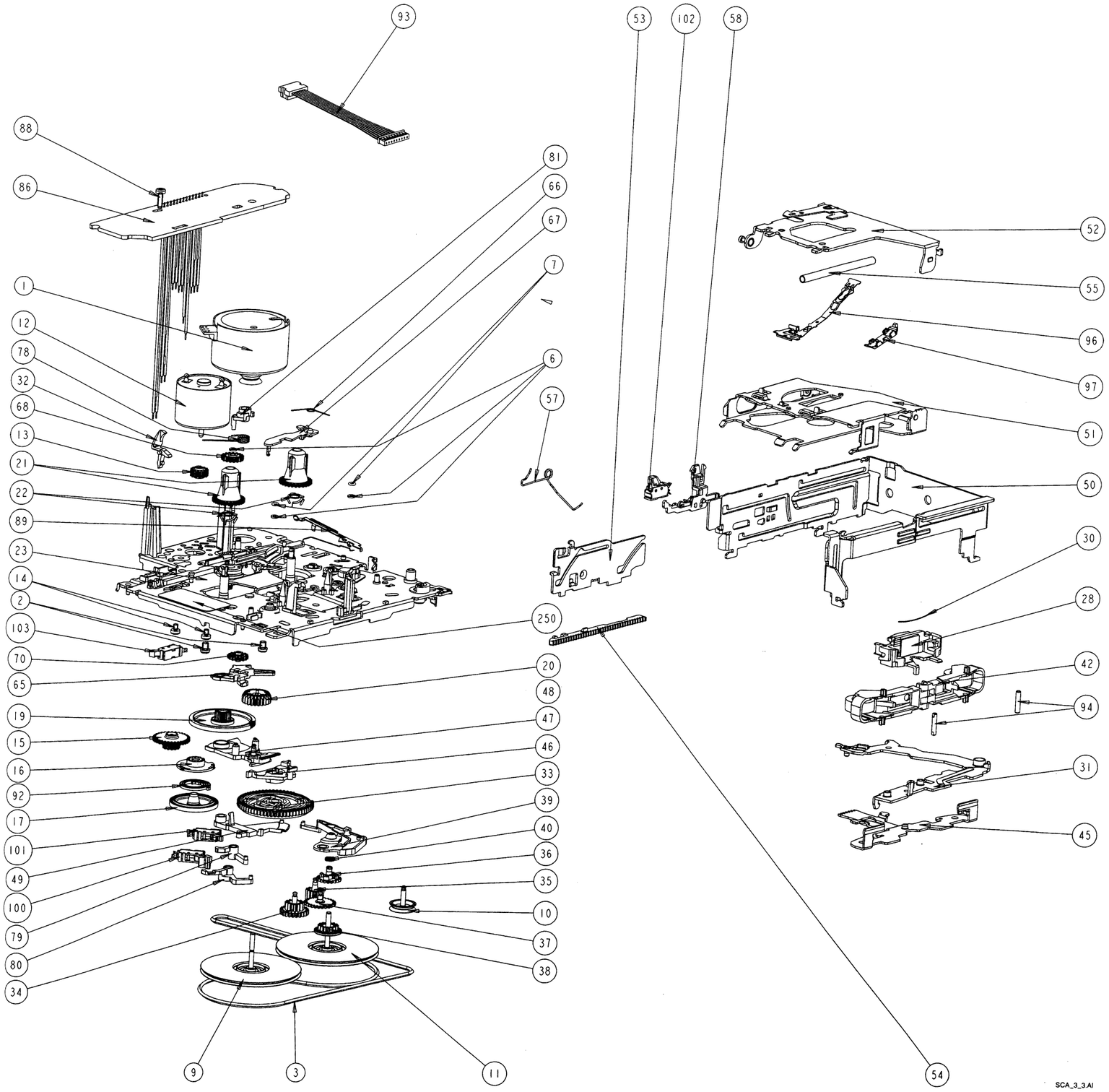


Figure iv

6. EXPLODED VIEW SCA-R3.3



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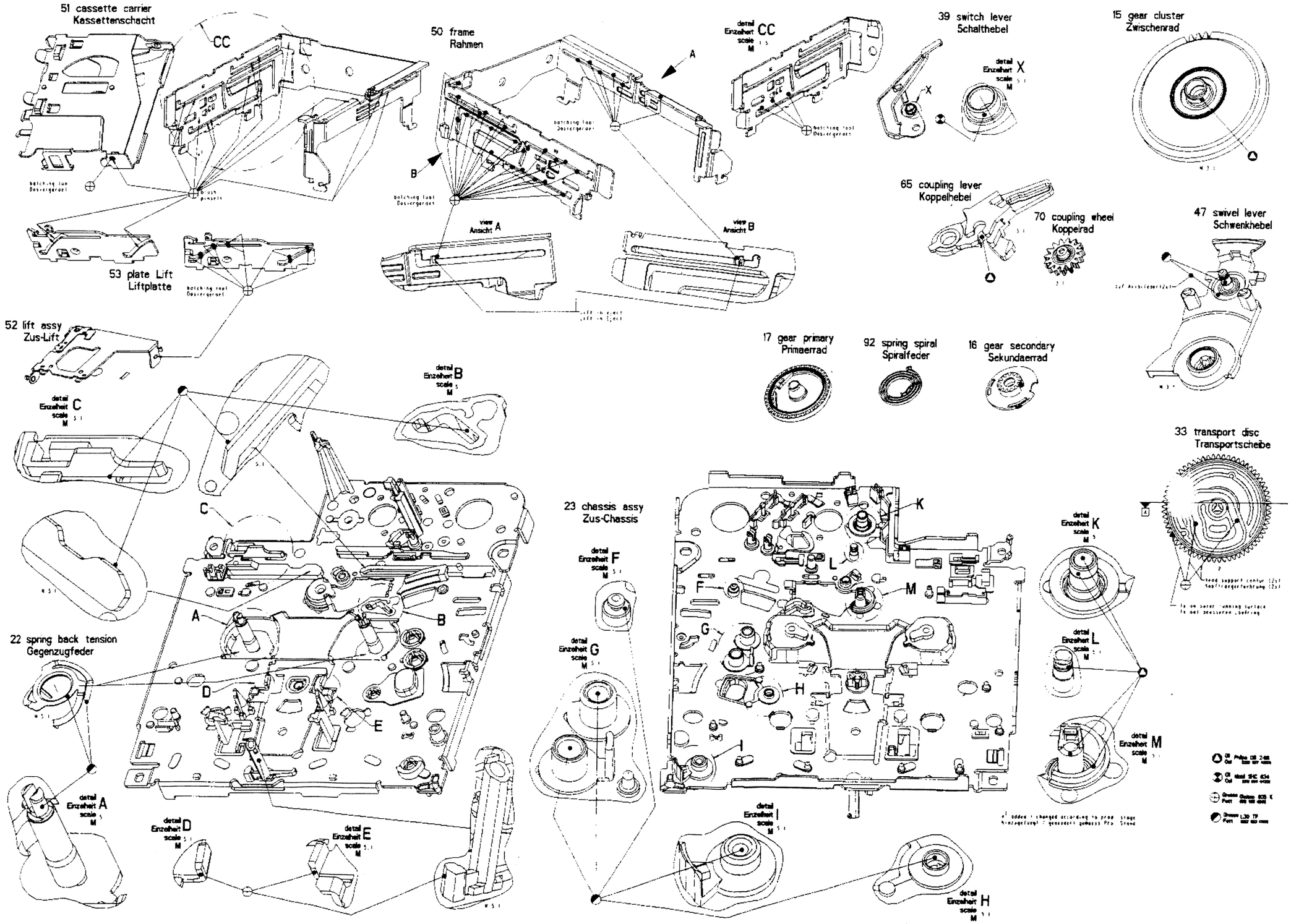
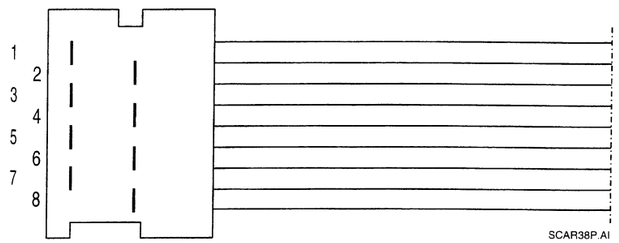
7. LUBRICATION OVERVIEW



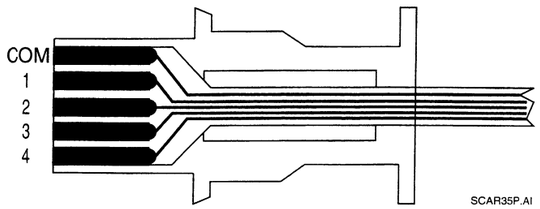
8. CONNECTIONS

8.1 SCA-R3.3 (basic version)



8 POLE CONNECTOR

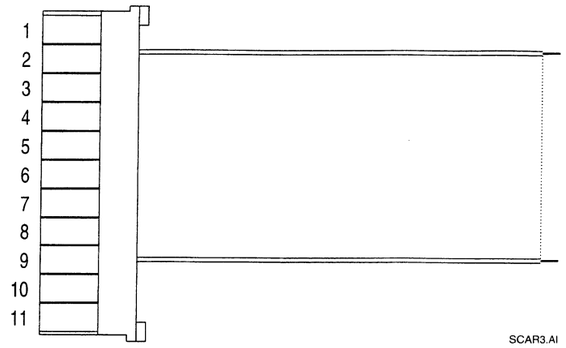
Pin	Signal
1	INSERT SWITCH
2	INSERT SWITCH - COM / GND
3	+ 12VDC
4	SERIAL CLOCK - SCL
5	SERIAL DATA - SDA
6	BUS REQUEST - CRQ
7	+ 5VDC
8	RESET



5 POLE HEAD CONNECTOR

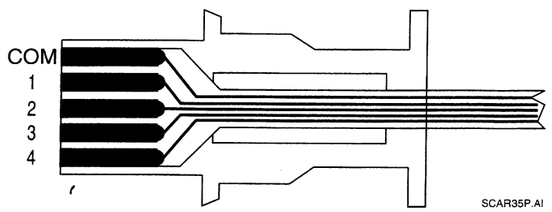
Pin	Signal
COM	COMMON
1	LEFT NOR (FORW.)
2	RIGHT NOR (FORW.)
3	RIGHT REV
4	LEFT REV

8.2 Connections SCA-R3.1



11 POLE CONNECTOR

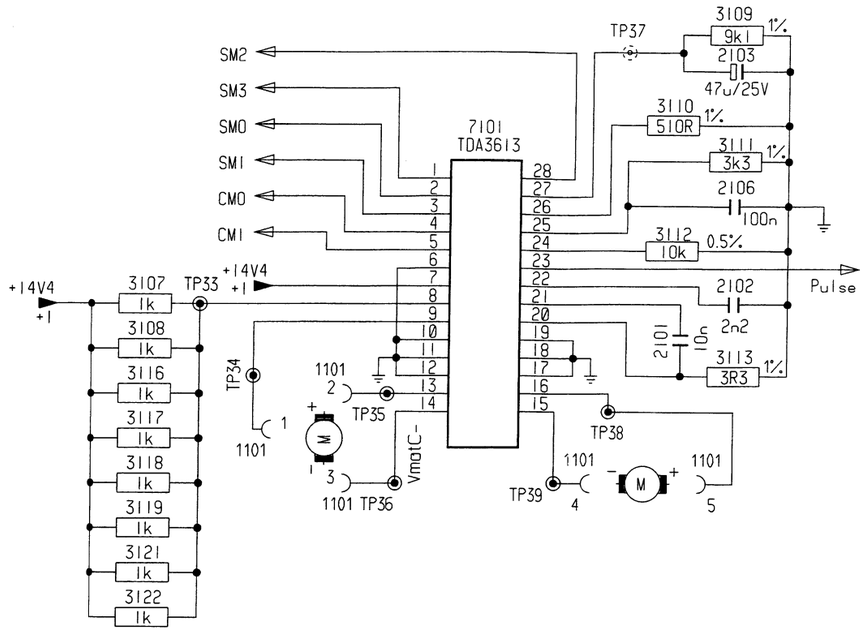
Pin	Signal
1	N.C.
2	INSERT SWITCH
3	INSERT SWITCH - COM / GND
4	+ 12VDC
5	SERIAL CLOCK - SCL
6	SERIAL DATA - SDA
7	BUS REQUEST - CRQ
8	+ 5VDC
9	RESET
10	N.C.
11	N.C.



5 POLE HEAD CONNECTOR

Pin	Signal
COM	COMMON
1	LEFT NOR (FORW.)
2	RIGHT NOR (FORW.)
3	RIGHT REV
4	LEFT REV

9. ELECTRICAL PART (CIRCUIT DIAGRAM 1 - HEAD CONNECTIONS - PCB LAYOUT)



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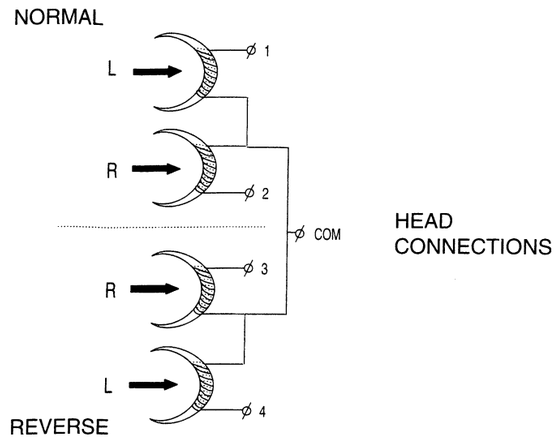
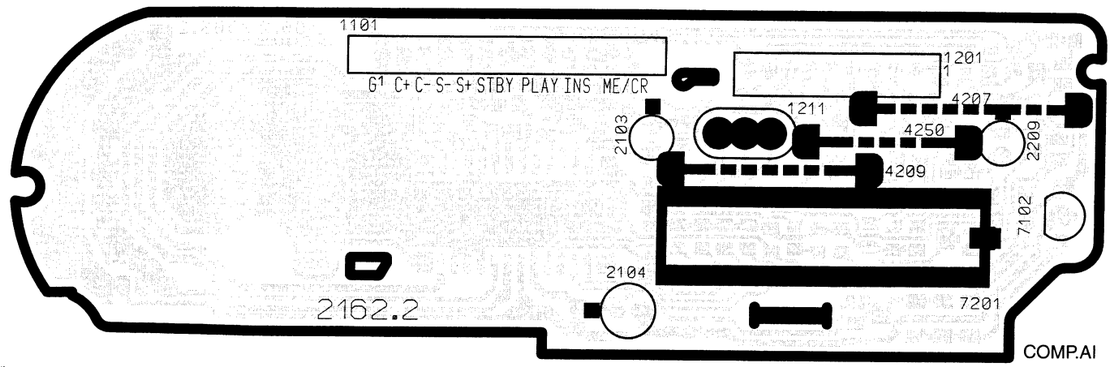
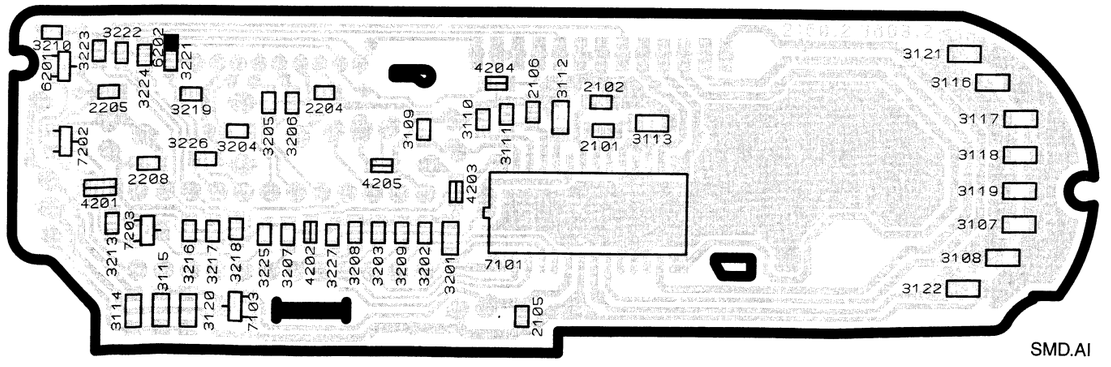


HEAD
CONNECTIONS



COMP.AI



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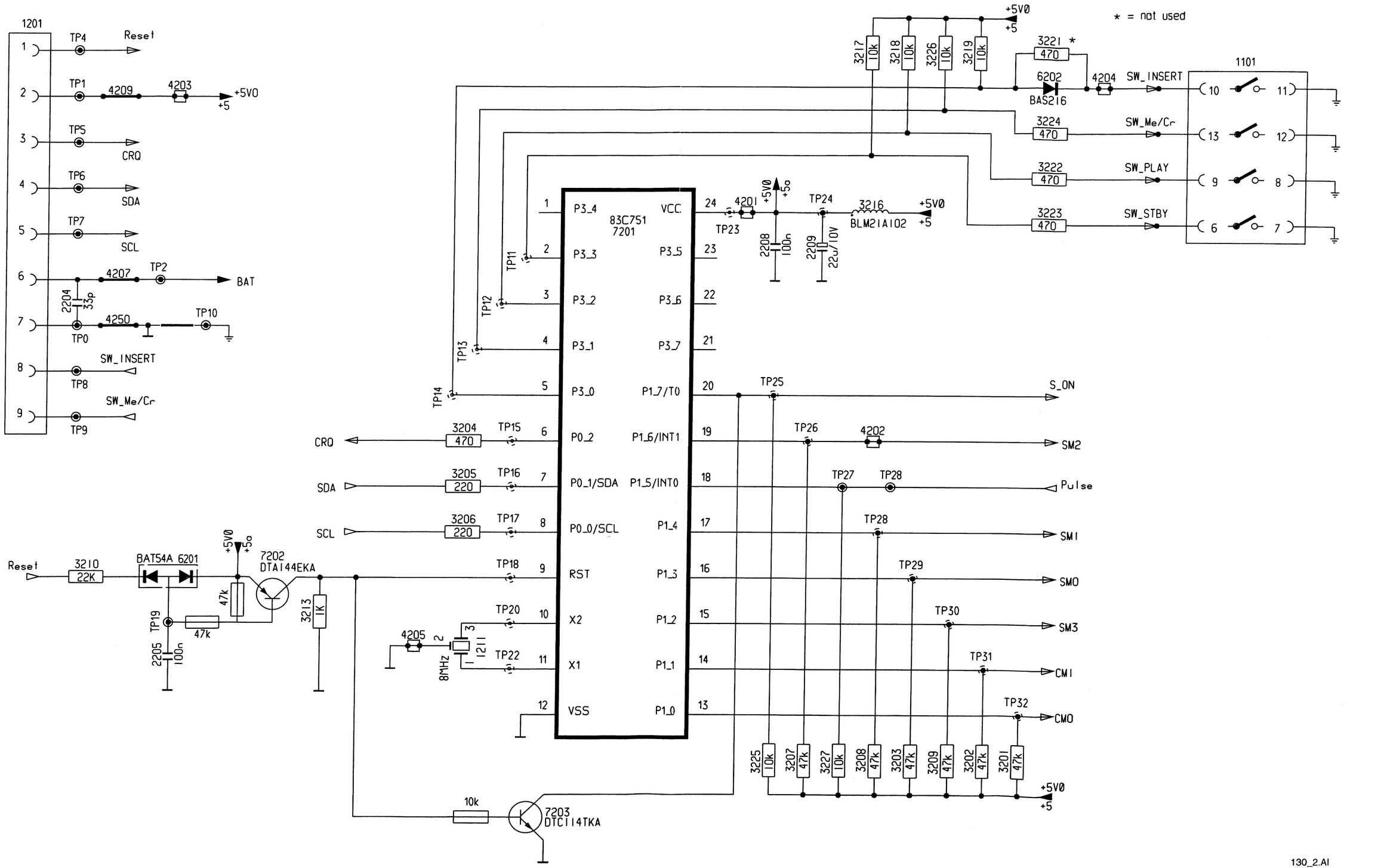
9. ELECTRICAL PART (CIRCUIT DIAGRAM 2)



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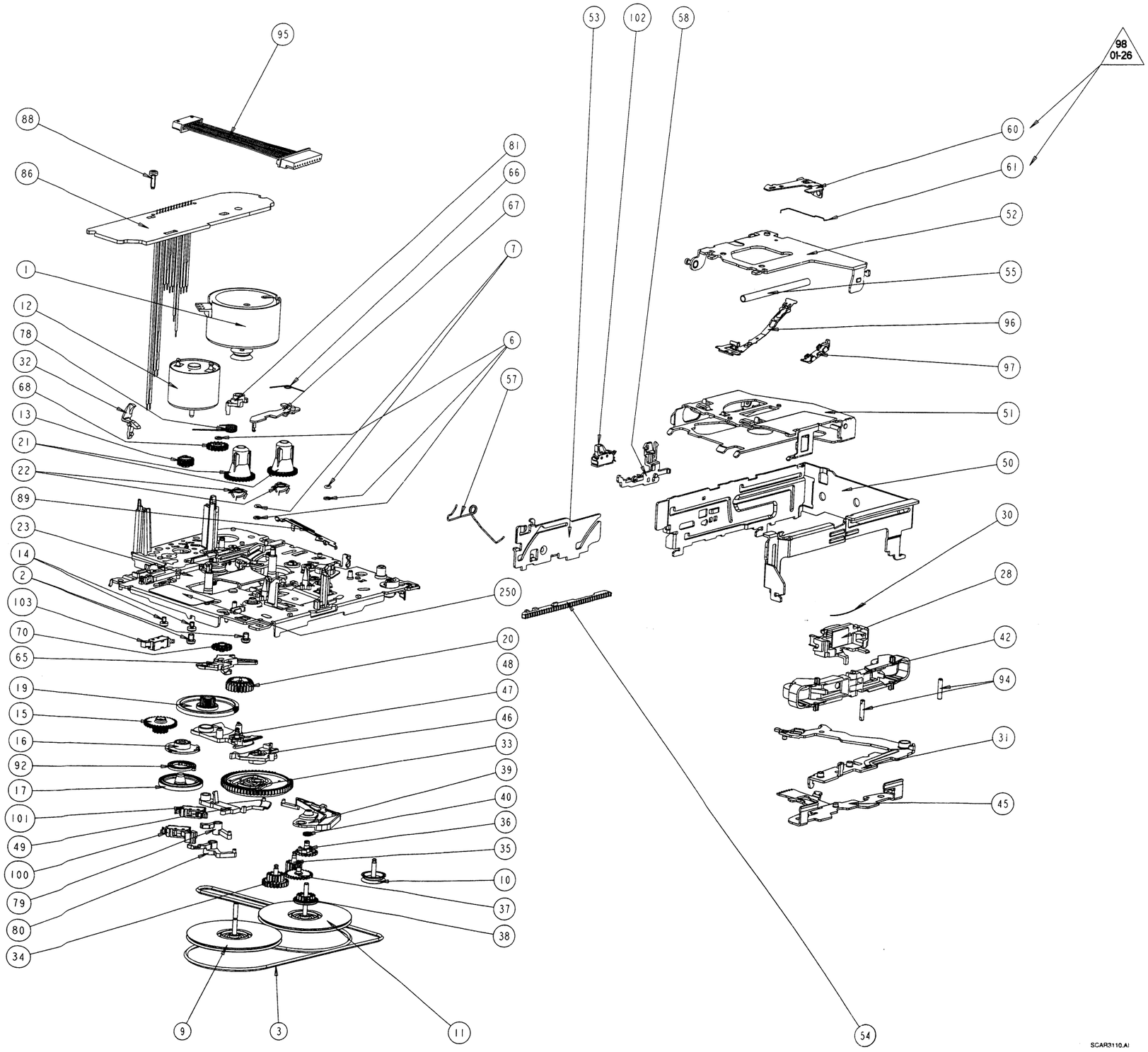
10. EXPLODED VIEW SCA-R3.1

(NOTE: for the SCA-R3.3 exploded view refer to section 6.)



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11. PARTS LIST

11.1 SCA-R mechanical parts

2	4822 502 12548	Special screw
3	4822 358 10221	Driving belt
6	4822 532 12841	Fixation retaining ring
7	4822 532 12842	Ring oil protection
9	4822 528 11176	Flywheel reverse
10	4822 528 81144	Divertingwheel pulley
11	4822 528 11183	Flywheel assy normal (with pulley)
14	4822 502 14467	Screw torx M2x2,5
15	4822 522 10637	Gear cluster
16	4822 522 10641	Damping gears assy
19	4822 528 11177	Wheel connection
21	4822 528 11178	Take up wheel
22	4822 492 11481	Spring back tension
30	4822 492 11482	Spring head
31	4822 404 10937	Head support
32	4822 402 10863	Rocking lever
33	4822 466 11665	Transport disc
34	4822 528 11179	Wheel intermediate
35	4822 528 11181	Drive wheel
37	4822 528 11182	Switch wheel 1
39	4822 402 10829	Switch lever assy
42	4822 402 10831	Pinchroller brkt assy
45	4822 402 10819	Lever simpson
46	4822 402 10821	Anchor lever
47	4822 432 11304	Swivel lever assy
49	4822 402 10822	Lever switching
50	4822 691 10627	Loading assy
54	4822 522 10638	Gear rod
58	4822 401 11716	Pcb fixation
65	4822 402 10832	Coupling lever assy
66	4822 492 11484	Spring coupling
67	4822 402 10824	Slider coupling
68	4822 522 10639	Lift wheel
78	4822 492 11485	Spring switch loading
79	4822 402 10826	Switch lever Standby
80	4822 402 10827	Switch lever Play
81	4822 402 10828	Switch lever Loading
88	4822 502 21488	ScrewM2x7 Ni tapt.
89	4822 460 11098	Blocking disc transp.

11.2 SCA-R electrical parts

1	4822 361 11009	Capstan motor assy
12	4822 361 11011	Servo motor assy
28	4822 249 10542	Magnetic head w/flexfoil
86	4822 214 12502	Pcb assy SCA R3.1
93	4822 320 12057	Cable assy SCA R3.3
95	4822 320 12144	Cable assy SCA R3.1
100	4822 276 13913	Switch Play
101	4822 276 13914	Switch Standby
102	4822 276 13915	Switch Insert
103	4822 276 13916	Switch CR/ME
105	4822 214 12503	PCB assy SCA R3.3

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Supplement

Car Cassette Deck SCA-R/3.3/3.1

Service Manual

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1. GENERAL

This supplement must be used together with the SCA-R3 service manual 4822 725 25481.
Because of changes and modifications in the meantime, the following parts have been revised and re-written:

- Technical data
- Maintenance
- Check & alignment procedure
- Dis- / Re-assembly procedure

Besides, a detailed 'Functional Description' has been added now. To clarify the descriptions, photographs and drawings are added where necessary.

2. TECHNICAL DATA

Operating voltages	:	10.0 - 16VDC (V1) (13.2VDC nom.) 4.75 - 5.25VDC (V2) (5VDC nom.)
Tape speed	:	4.76 cm/s ± 3%
Number of tracks	:	2 x 2
Wow and Flutter	:	≤ 0.5% (DIN w.)
S/N ratio	:	≥ 46dB (preampl.)
Crosstalk suppression (track 2-3)	:	≥ 50dB
Channel separation (track 1-2/3-4)	:	≥ 40dB
Fast winding time	:	≤ 100s (C-60)
Bus interface	:	I^2C
Weight (only mechanism)	:	400 g

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3. DETAILED FUNCTIONAL DESCRIPTION

3.1 Function / Switch Status Overview

Position	Standby Switch	Play Switch	Insert Switch
Eject	Open	Closed	Closed
Standby	Open	Open	Open
Wind	Closed	Open	Open
Play	Closed	Closed	Open

3.2 Eject Position

The transport disc (pos. 33) must be in the position, shown in fig. **1**.
NEVER turn the transport disc, unless it is not in the 'Eject' position (yet)! If not in 'Eject' position, turn the NOR fly-wheel pos. 11 counter-clockwise until the transport disc reaches the 'Eject' position.
After this position has been reached, don't turn it anymore!

3.3 Insert Function

When a cassette is inserted, the 'Insert' switch is opened; the servo motor is turning clockwise so that the cassette lift moves backward until the 'Play' switch is opened.
At that moment, the servo motor stops and the deck is in 'Standby' position. Refer to fig. **2**, especially to the 'Standby' switch position.

3.4 Standby-to-Play Function

The capstan motor turns in clockwise direction until the deck reaches the "Wind" position (FF / REW - fig. **3/4**) and the standby switch closes. At the same time the coupling assy (pos. 65 and 70) and gear rod pos. 54 are uncoupled from the servo motor and swivel lever pos. 47 is released now.
The servo motor pos. 12 turns the swivel lever until it grasps into take-up wheel gear pos. 21.
The rotation direction of the servo motor, together with the movement direction of the swivel lever, determines the play direction of the deck (NOR or REV).
The capstan motor turns clockwise until the transport disc reaches the "Play" position (Nor / Rev - fig. **5/6**). Now both the standby – and play switches are closed.
The servo motor starts to turn and tightens the tape.
Thereafter, the capstan motor starts to turn counter-clockwise for tape transport and uncouples the transport disc; simultaneously the servo motor now winds the tape (play function).

3.5 Tape End Detection

When the tape reaches the end when playing, this is detected by means of servo motor pulses. The microprocessor gives the command to the servo motor to change its rotation direction.

3.6 Play-to-Standby Function

The capstan motor now starts turning clockwise so that the transport disc assy is coupled again; the transport disc turns until both the standby- and play switches are open (refer to fig. **2**).
During the transport disc rotation, the coupling assy (pos. 65 and 70) and gear rod pos. 54 are coupled again to the servo motor and the swivel lever is disabled from the take-up wheel.

3.7 Standby-to-Eject Function

The capstan motor turns until the transport disc is in the right position to couple the loading assy. The servo motor starts turning so that the loading assy moves forward until the insertion switch is closed. At that moment the deck reaches the "eject" position and the cassette is ejected.

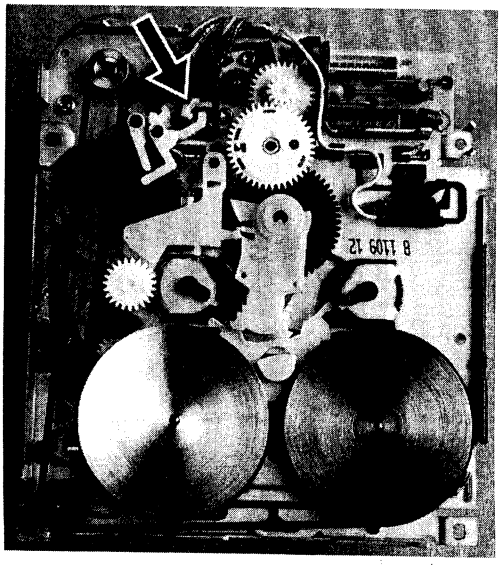


Figure 1

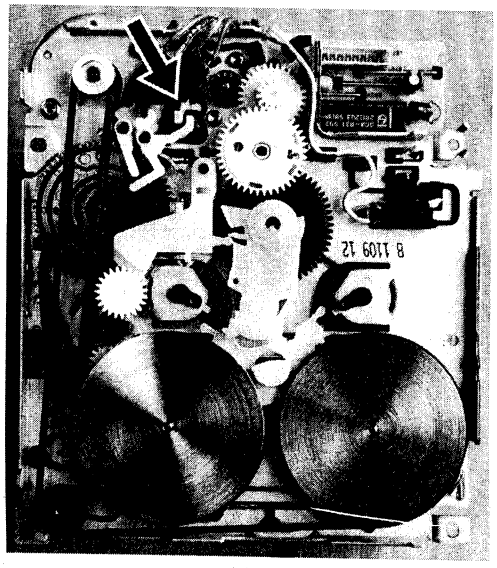


Figure 2

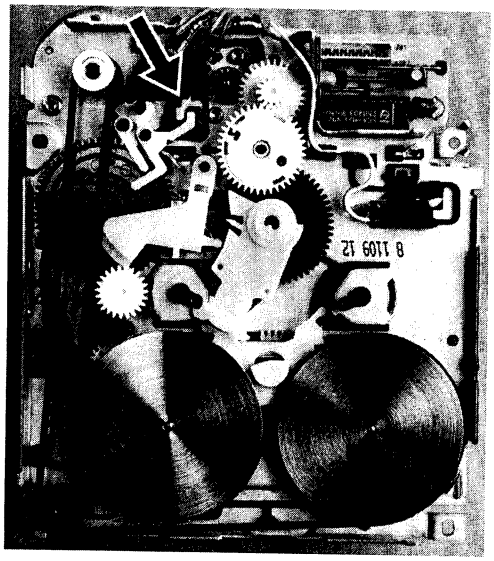


Figure 3

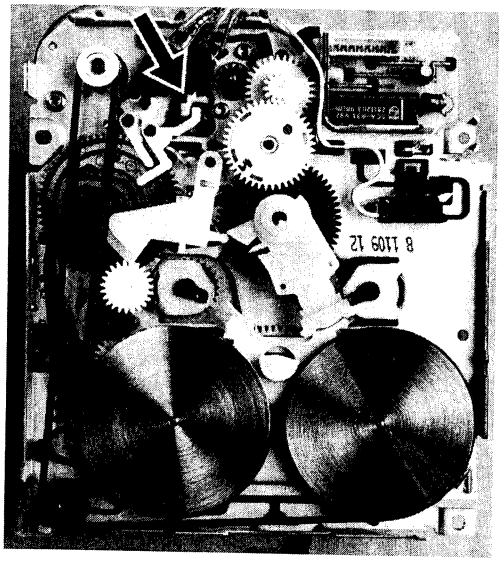


Figure 4

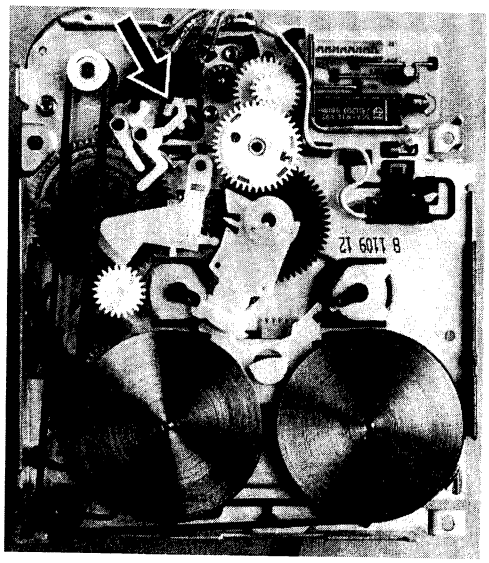


Figure 5

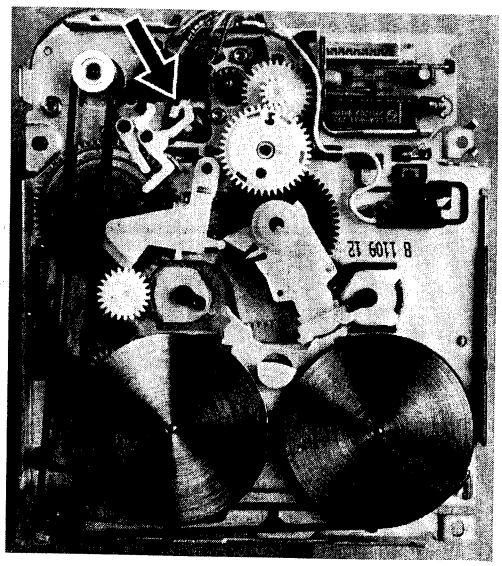


Figure 6

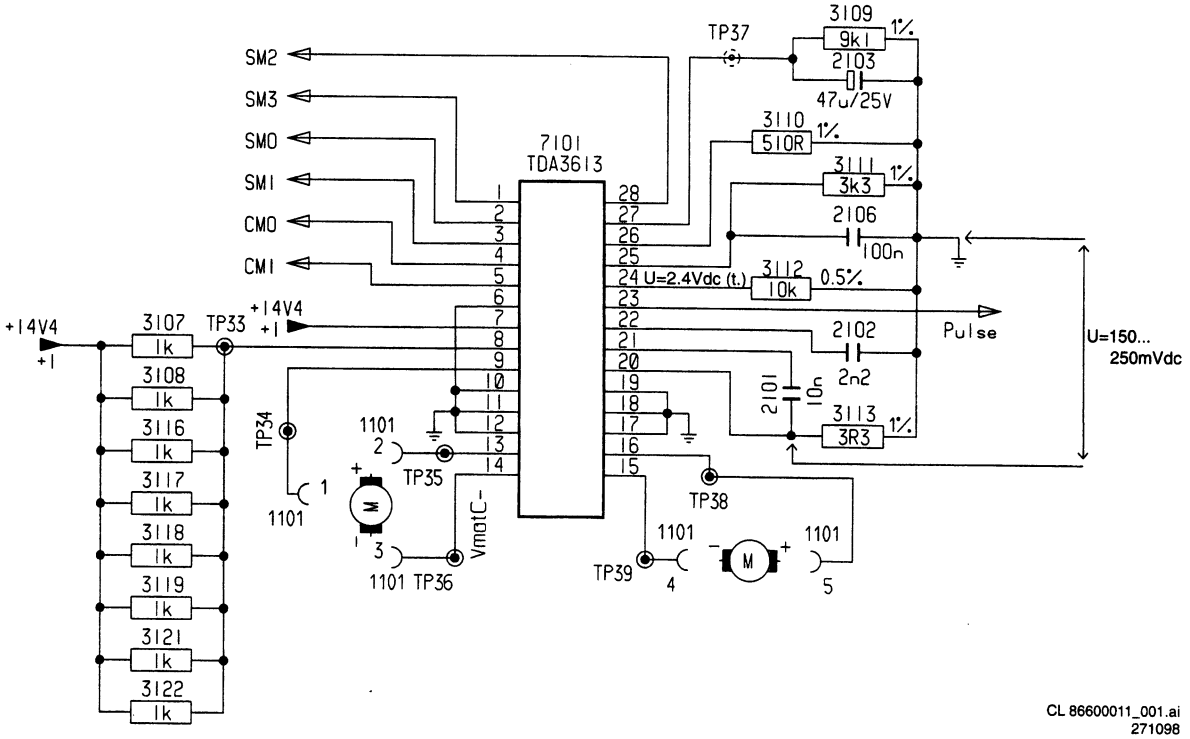


Figure 7

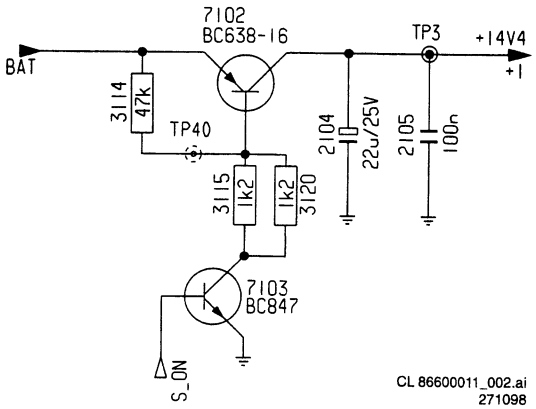


Figure 8

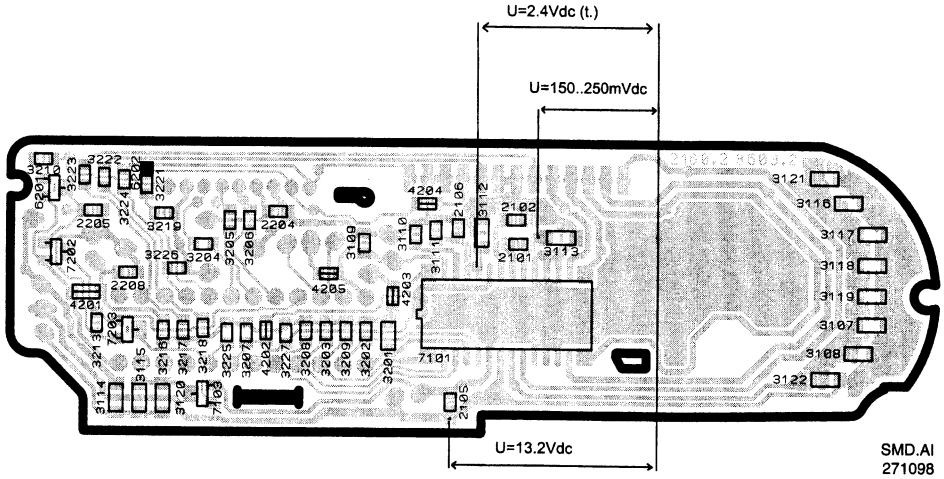


Figure 9

4. MAINTENANCE

The tape deck mechanism requires periodic cleaning.

4.1 Cleaning cassette

Use drop-in cleaning cassette SBC114 (4822 389 20035)

4.2 Cleaning with alcohol or spirit

- Cleaning with alcohol or spirit is also possible.
- Especially the following parts need cleaning:
  - Playback head pos. 28 including tape guides.
  - Capstans pos. 9/11 and pressure roller assy pos. 42.

5. CHECKS AND ADJUSTMENTS

5.1 Equipment

Equipment required:

- Universal test cassette SBC419 - 4822 397 30069
- Universal test cassette SBC420 - 4822 397 30071
- Friction test cassette 811/CTM - 4822 395 30054
- Spring scale 50-500g - 4822 395 80028
- Jig / puller for clutch - 4822 395 60039
- Wow & Flutter meter
- AC mV meters
- Power supply unit with adjustable voltage 0 – 30VDC / ≥ 2A

5.2 Wow & Flutter

This check has to be carried out on a COMPLETE car radio set; proceed as follows:

- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 or SBC420 and play the 3,150 Hz signal.
- The wow & flutter value must be ≤ 0.5% (DIN weighted – overall life cycle).

5.3 Tape speed drift / Speed adjust

- The tape speed must be 4.76 cm/s ± 3% (overall life cycle).
- The tape speed can be adjusted with the screw of the capstan motor.
- This screw can be reached via the hole in pcb pos. 86 (see figure **10**).
- Use a screw driver of 1.8mm with an insulated shaft.

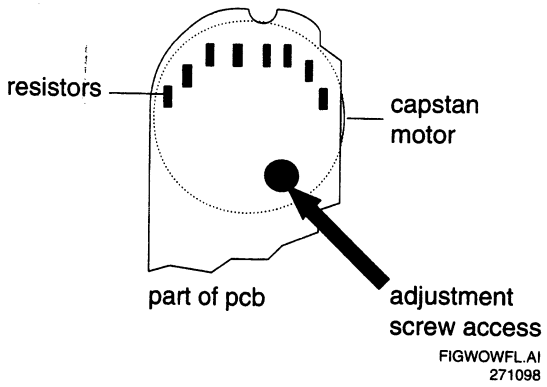


Figure 10

5.4 Play Torque

- Insert friction test cassette 811/CTM (NOR and REV).
- Play mode take-up torque must be 3.5 - 7.5 mNm.

5.5 Check Procedure of Electrical Operation

- ***Note:*** *refer to figures **7 – 9**.*
- First check the voltage at TP3 (collector of pos. 7102). It must be equal to the normal car voltage (nom. 13.2VDC). If this value is not met, check pos. 7102 / 7103 and replace if necessary.
- Measure the voltage between GND and pin 20 of pos. 7101, as indicated in figure **9**. It must be 150 ... 250mVDC and hence I_{R3113} must have a value between approx. 45 .. 76mA.
- Visually check resistors pos. 3109, 3110 and 3112. The value resp. must be: 9k1, 510Ω and 10k.
  In case of doubts, check the value with help of an Ω-meter.
- Measure voltage at the indicated point (pos. 7101 pin 24); this must be 2.4VDC (typical value). If this value is not met, replace pos. 7101 or pcb.
- Check the servo motor by measuring its coil resistance; the value must be approx. 12Ω.
- Check the mechanical operation of the motor by applying a voltage of approx. 3VDC to it.
  Notes: + to red-marked terminal; disconnect motor from IC!

5.6 Mechanical Check

If there is no improvement of deck operation, first clean the deck as described, then check the following parts for correct functioning:

- Motors pos. 1 and 12
- Pressure rollers of pos. 42
- Belt pos. 3
- Flywheels pos. 9 and 11
- Diverting wheel (pulley) pos. 10
- All gears

In case of need to replace one or more parts, refer to the 'Dis-/Re-a ssembly Procedure' part.

6. DIS-/RE-ASSEMBLY PROCEDURE

6.1 Important

Before disassembling the tape deck, take care that the cassette holder pos. 51/52 is in the **eject** position. See figures **1** and **11**.
Handle the cassette lift assy carefully to prevent bending it.
For re-assembling, follow the procedures in reverse order. Take care that the wires, cams etc. are in the right position again after re-assembling.
For the exact position of the parts, refer to the exploded view (fig. **19**).

6.2 Standby position

Refer to figure **2**.
Take care that the cassette lift and the transport disc pos. 33 are in the right position (see '**6.1**') before to put it in the standby position!
The lift can be put in the standby position by turning gear assy pos. 16 / 17 / 92 to the right.
Hold the lever on pos. 52 in such a way that the cassette holder is unblocked and can move backward completely; keep turning the gear assy until lift moves downwards.
Be careful not to bend metal parts unnecessarily and not to damage the gears, flywheels and belt!

6.3 Switches

To remove the

- PLAY switch pos.100,
- STANDBY switch pos.101,
- INSERT switch pos.102 and/or
- ME/CR switch pos.103,

carefully slide the switch(es) concerned out of the holder.

6.4 Capstan motor pos. 1

- Remove the belt pos. 3.
- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 2.
- Unsolder the capstan motor connections and take out the capstan motor.
- When re-assembling, take care that the cam on the chassis grasps in the spare screw hole of the motor.
  Note: Use a *new* belt when re-assembling!

6.5 Servo motor pos. 12

- Remove the screw pos. 88.
- Carefully slide out the pcb fixation pos. 58 and lift up the pcb pos. 86.
  Take care not to damage the black pcb supports!
- Unscrew the two screws pos. 14.
- Unsolder the servo motor connections and take out the servo motor.
- When re-assembling, take care that the cam on the chassis grasps in the hole of the motor.
- *Note:* Take care *not* to damage the gears!

6.6 Pressure rollers pos. 42

- Remove the holders with the pressure rollers by unclicking them from the centre pivot which is at the right side of the base plate pos. 23.

6.7 Head assy pos. 28

- Remove the pressure rollers as described in '**6.6**'.
- Remove the spring pos. 30.
- Remove the head assy from the holder of the base plate pos. 23.
- *Note:* When re-assembling, take care to put the spring pos. 30 in the right position again! See figure **13**.

6.8 Flywheel / gear assy (NOR) pos. 11

- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 11.
- Remove fixation retaining ring pos. 6.
- Take out the flywheel.
- *Note: when re-assembling, use a new retaining ring and belt*, and take care that the gear does not become damaged. Put the flywheel spindle into the bearing carefully and turn it slightly.
  Clean the capstan.

(continued on page 5)

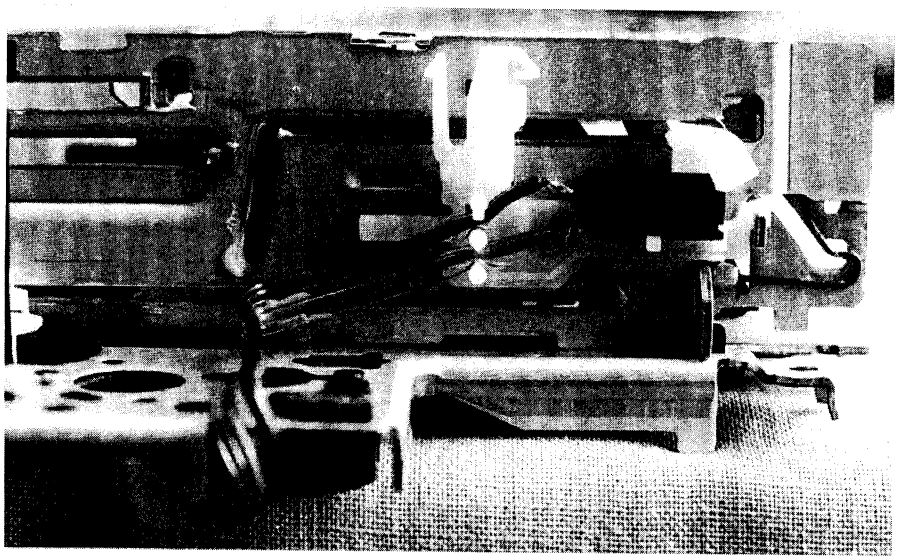
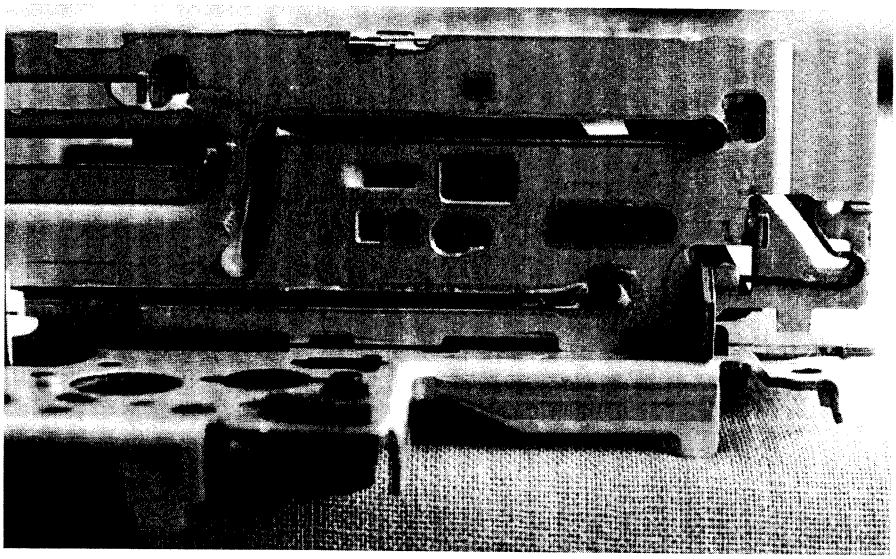


Figure 11



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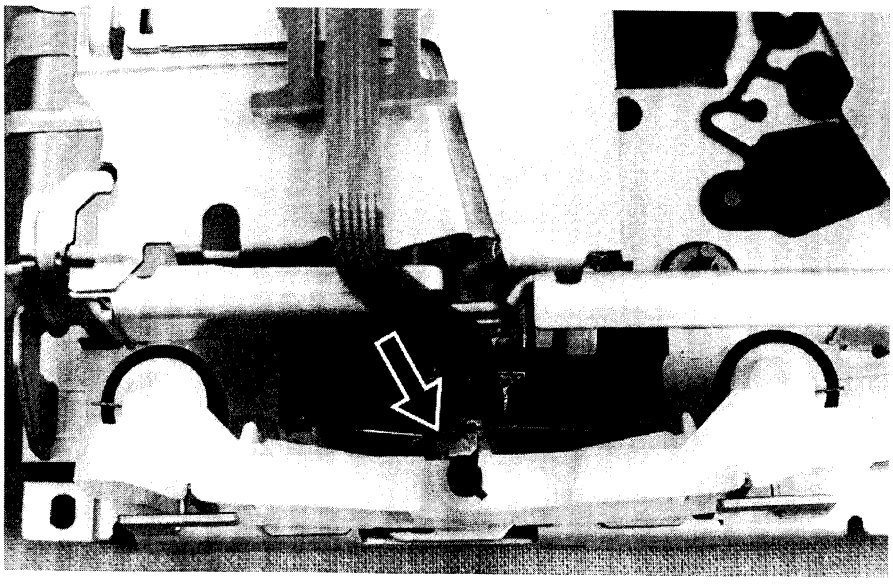

Figure 13

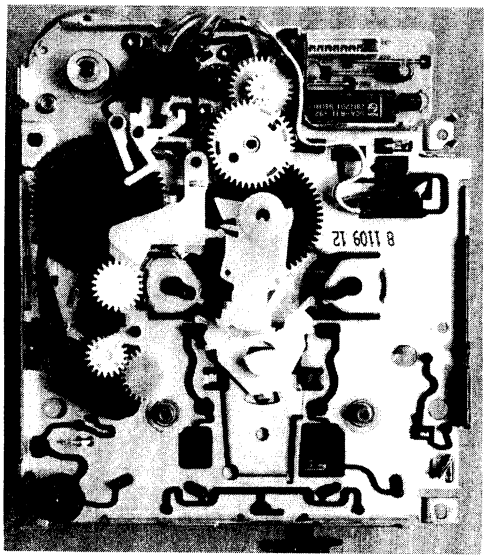

Figure 14

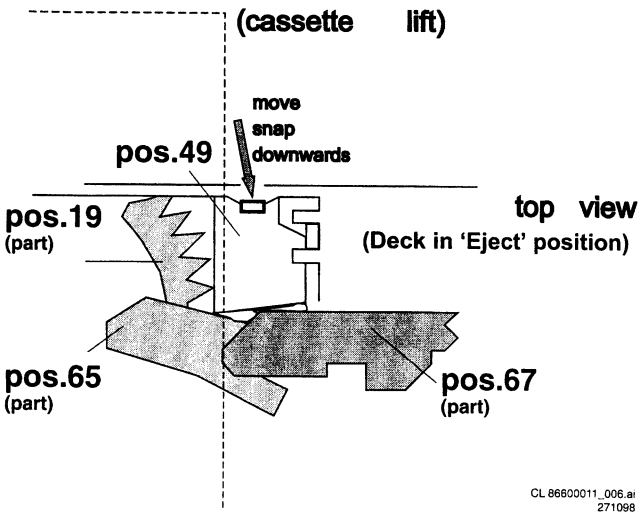

Figure 15

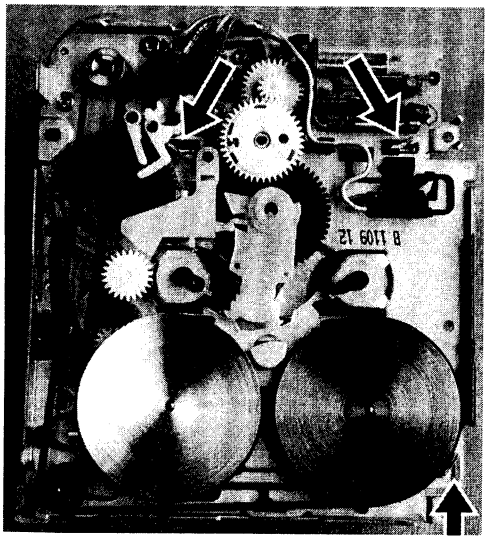

Figure 16

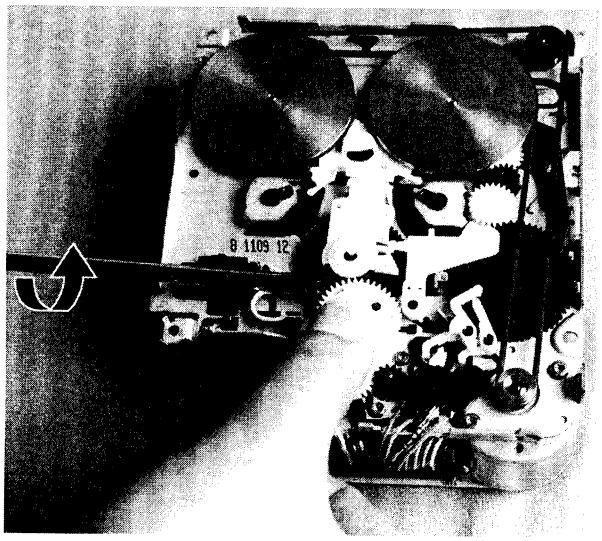

Figure 17

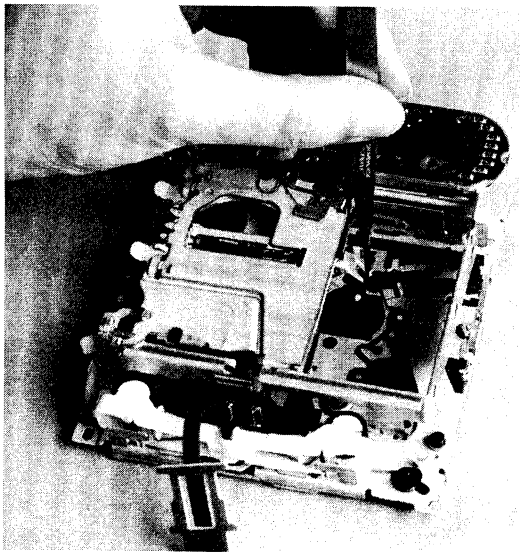

Figure 18

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6.9 Flywheel (REV) pos. 9

- *First* move the cassette holder to the **standby** position. Refer to '**6.2**' and figure **2**.
- When the cassette holder reaches the standby position, the capstan of flywheel pos. 9 can be reached.
- Remove the belt pos. 3.
- Remove the oil protection ring pos. 7 from the capstan of flywheel pos. 9.
- Remove fixation retaining ring pos. 6.
- Take out the flywheel.
- *Note: when re-assembling, use a new retaining ring and belt!*
  Clean the capstan.

6.10 Take-up wheel (NOR) / back tension spring pos. 21

- The cassette holder assy pos. 51 / 52 must be in the **eject** position.
  If the holder assy isn't yet, turn flywheel NOR pos. 11 to the left.
- When the cassette holder reaches the eject position, take-up wheel (NOR) can be reached.
- Carefully shift levers pos. 65 / 67 in backward direction until the take-up wheel becomes free.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot. See figure **20**.

6.11 Take-up wheel (REV) / back tension spring pos. 21

- The cassette holder assy pos. 51 / 52 must be in the **standby** position.
  Refer to '**6.2**' and figure **2**.
- When the cassette holder reaches the standby position, take-up wheel (REV) can be reached.
- Take off take-up wheel by pulling it upward and holding the fixation snaps of the pivot together simultaneously.
- *Note:* When re-assembling, grease the pivot. See figure **20**.

6.12 Replacing Special Parts

Unless replacing after damaging, the following parts may be taken out NEVER:

- Transport disc pos. 33
- Switch wheel 1 pos. 37 / Switch lever assy pos. 39
- Gear rod pos. 54 / Lift wheel gear pos. 68
- Servo drive gear cluster pos. 15
- Diverting wheel pos. 10
- Coupling lever assy pos. 65

The following sections describe the dis- / re-assembling procedure of these parts, when they need to be replaced.

6.13 Transport disc pos. 33

- Remove belt pos. 3.
- Remove switching lever pos. 49 by releasing the snap as shown in figure **15**.
- Remove play switch lever pos. 80.
- Remove standby switch lever pos. 79.
- Carefully move the arm of switch lever assy pos. 39 away from the transport disc.
- Remove intermediate wheel pos. 34.
- Cut the three snappers of the transport disc pos. 33 and take out the disc. Do not damage the post!
- When re-assembling, insert a new transport disc. Take care that the head support contour is in the 'standby' position. Also take care that the switching lever pos. 49 is in the right position again!
  See fig. **1**.
  Grease the head support contour at the right points. See figure **21**.

6.14 Switch wheel 1 pos.37 / Switch lever assy pos. 39

- Remove flywheel (NOR) pos.11 as described in '**6.8**'.
- Cut pin of switch wheel 1 pos. 37.
- Take out switch lever assy pos. 39.
- When re-assembling, insert a new switch wheel.

6.15 Gear rod pos. 54 / Lift wheel gear pos. 68

- First remove the cassette loading assy pos. 50 by bending the three lips of the assy in straight position, lifting it at the front and sliding it out carefully. See figure **16**.
- Take out gear rod pos. 54.
- Remove fixation retaining ring pos. 6.
- Take out lift wheel gear pos. 68.
- *Note: when re-assembling, use a new ring!*

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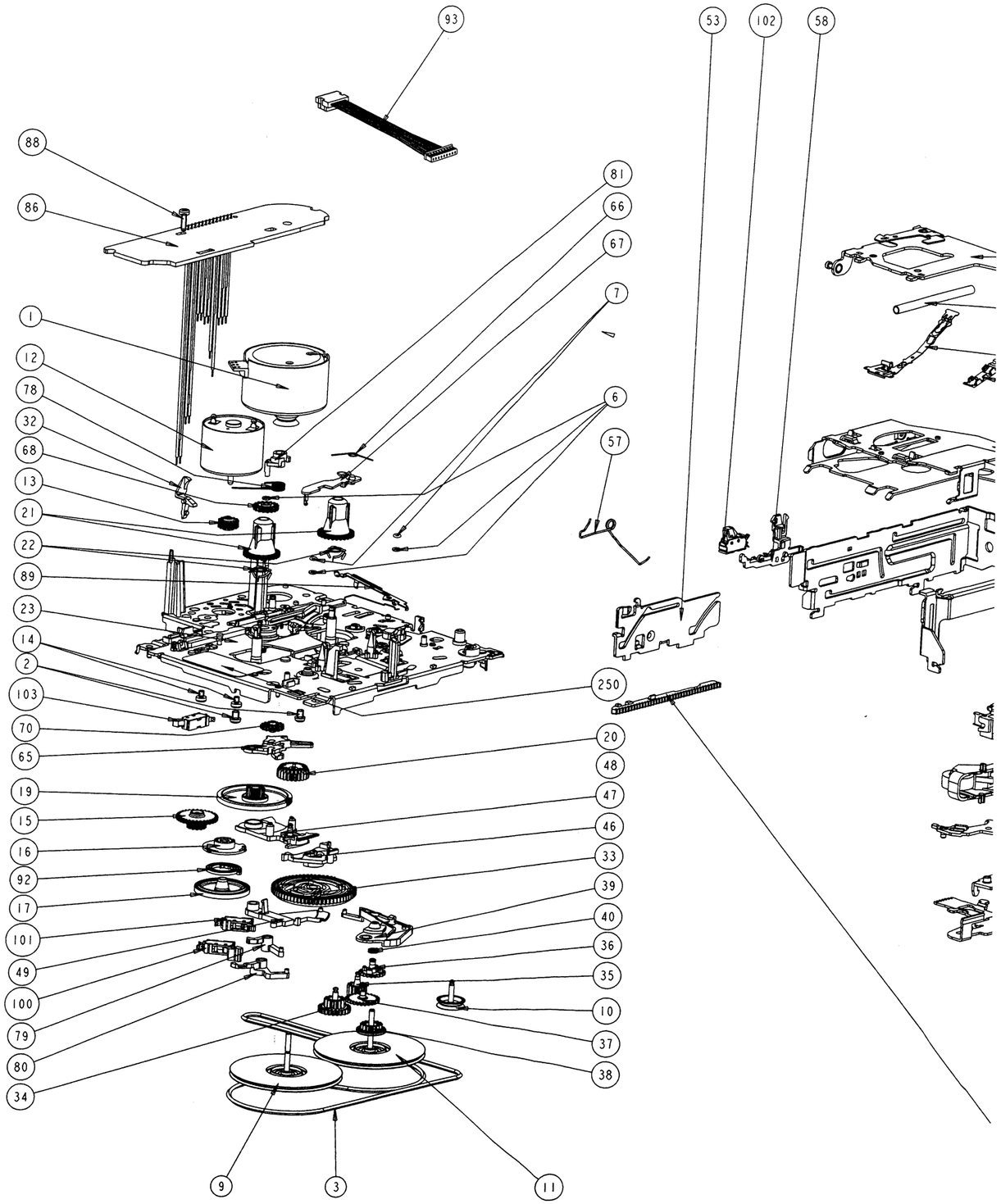

Figure 19

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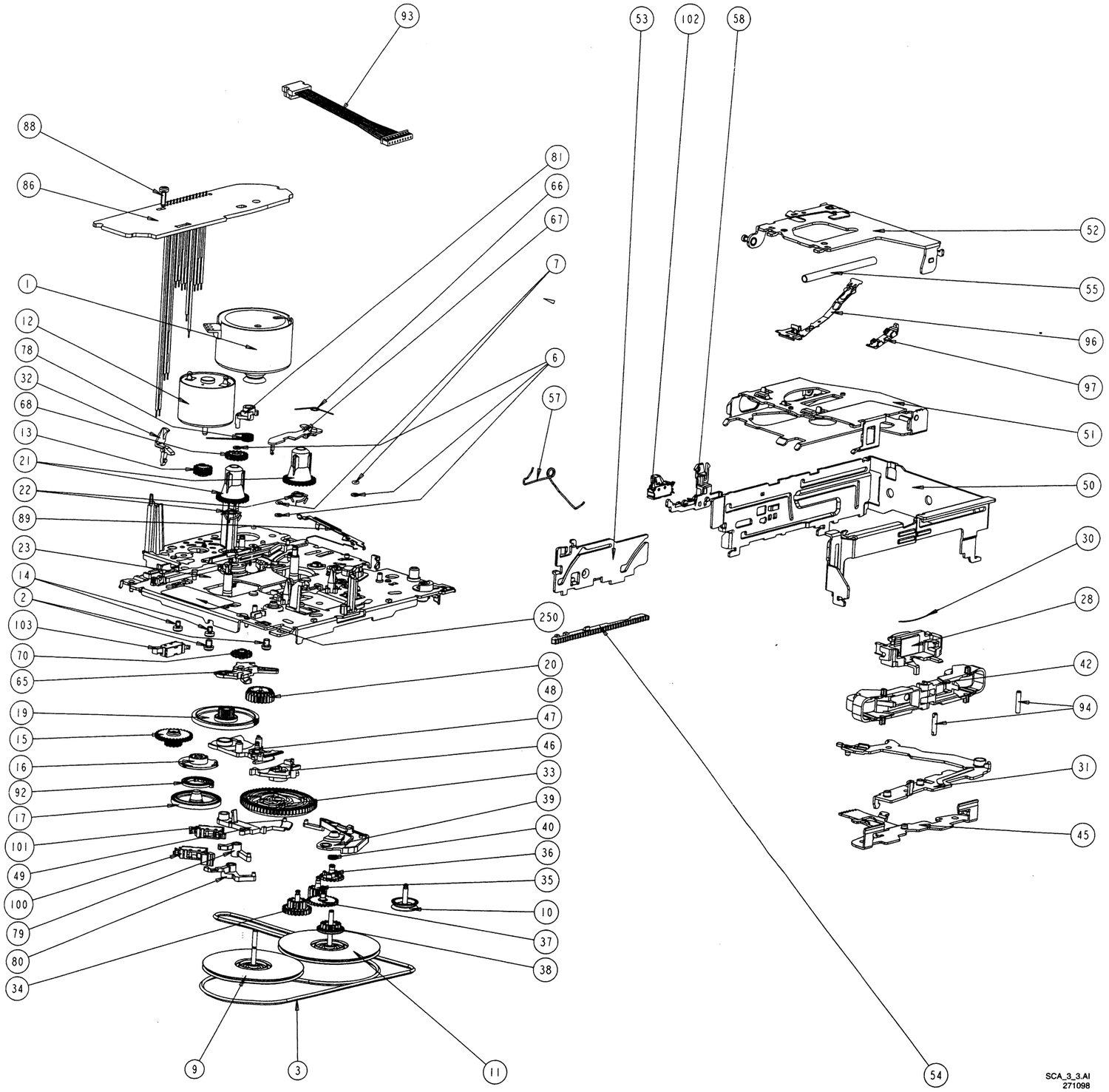
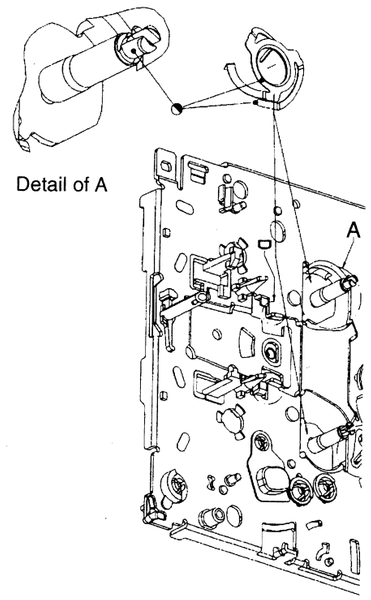


Figure 19



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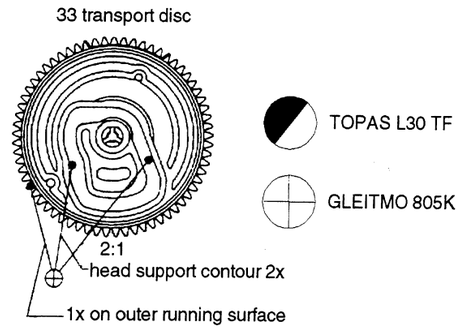

Figure 21

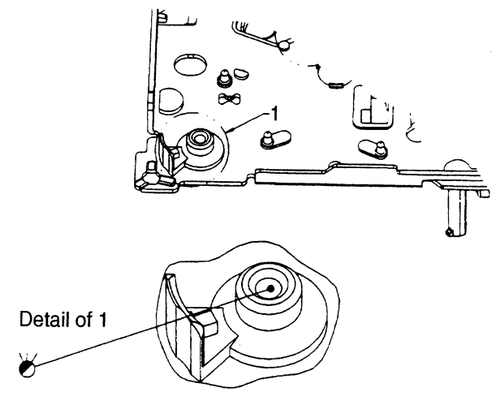

Figure 22

6.16 Servo drive gear cluster pos. 15

- *Note:* refer to figure **17**.
- Carefully lift the damping gear pos. 16 / 17 / 92 by a screwdriver as shown in the figure and remove it.
  Leave this assy complete!
- Remove switching lever pos. 49.
- Remove swivel lever assy pos. 47.
- Take out connection wheel pos. 19.
- Take out gear cluster pos. 15.
- *Important:* when re-assembling, oil the gear bearings.

6.17 Diverting wheel pos. 10

- Remove belt pos. 3.
- Remove the diverting wheel with help of special jig / puller.
- *Note:* When re-assembling, grease the wheel bearing in accordance with figure **22** and insert a *new* belt!

6.18 Coupling lever assy pos. 65

- Note: the deck must be in the **eject** position!
- Remove damping gear assy pos. 16 / 17 / 92 (see '**6.16**'). Leave this assy complete!
- Remove switch lever assy pos. 49 (see '**6.13**').
- Remove swivel lever assy pos. 47.
- Remove connection wheel assy pos. 19.
- Remove coupling spring pos. 66.
- Shift the coupling slider pos. 67 completely backward and remove it with help of a pair of tweezers.
  See figure **18**.
- Take out the coupling lever pos. 65.

6.19 Re-assembly precautions

When re-assembling the deck, take care of proper mounting of the cassette loading assy. The cam of the lift plate pos. 53 (A in figure below) must fall into the sleeve of the loading assy plate of pos. 50. See figures **11**, **12** and **23**.
The other cam B must fall into the notch of the gear rod.
The loading assy plate must match the base plate *completely*. Bend the three lips back into the right direction so that the loading assy plate is locked. See also figure **16**.

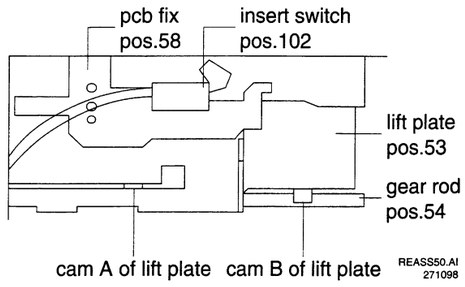

Figure 23

Always use a new belt when re-assembling it! The belt must be mounted as indicated in the figure below.
Take care that the belt is not twisted, not touched by grease and not damaged by sharp edges of the chassis!

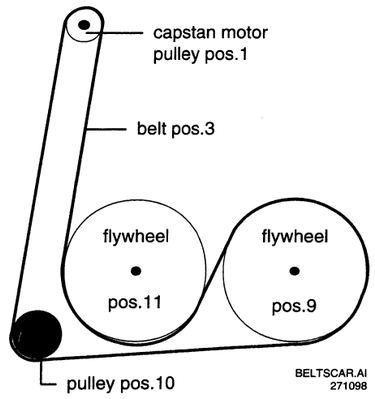

Figure 24

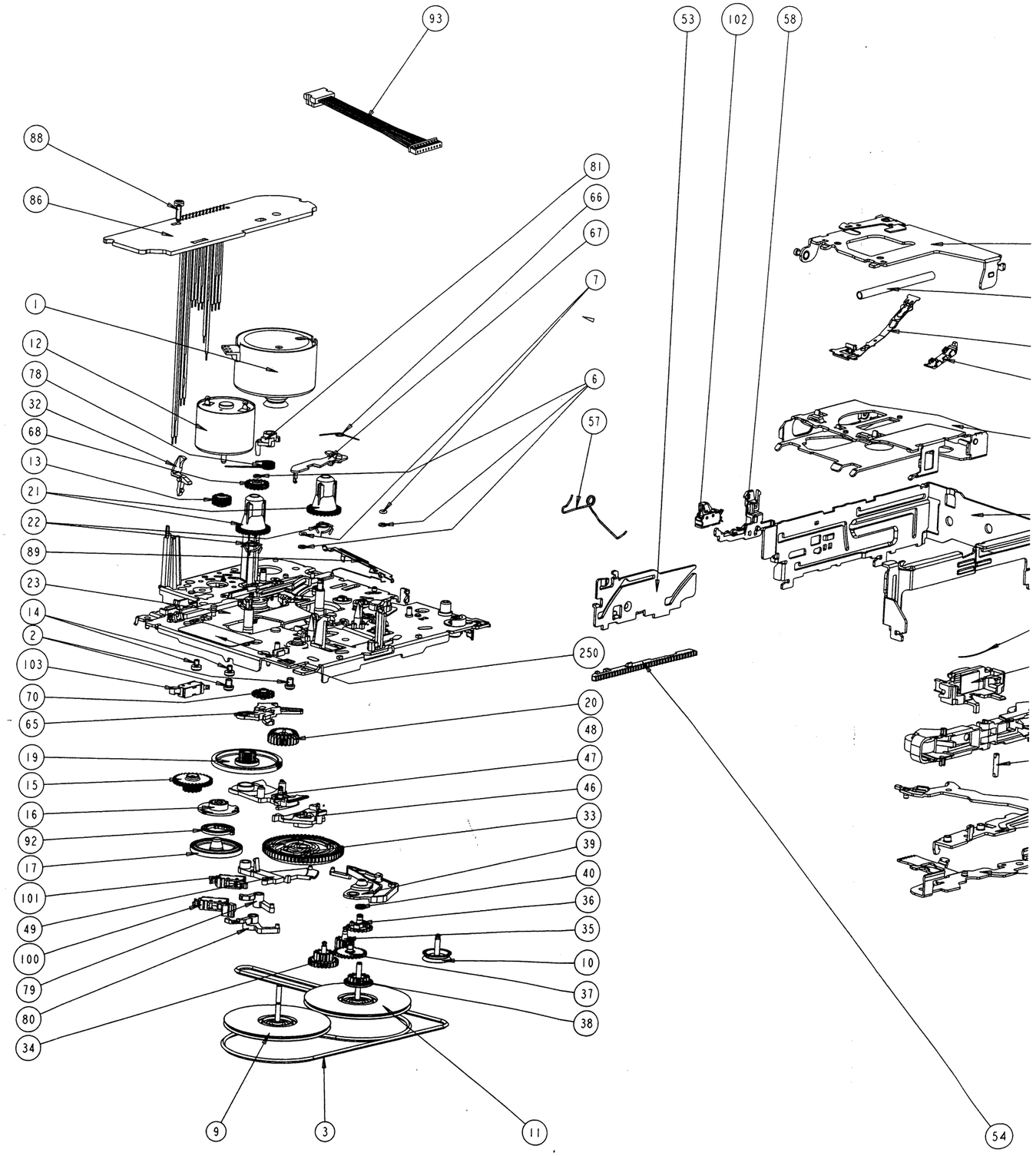

Figure 19

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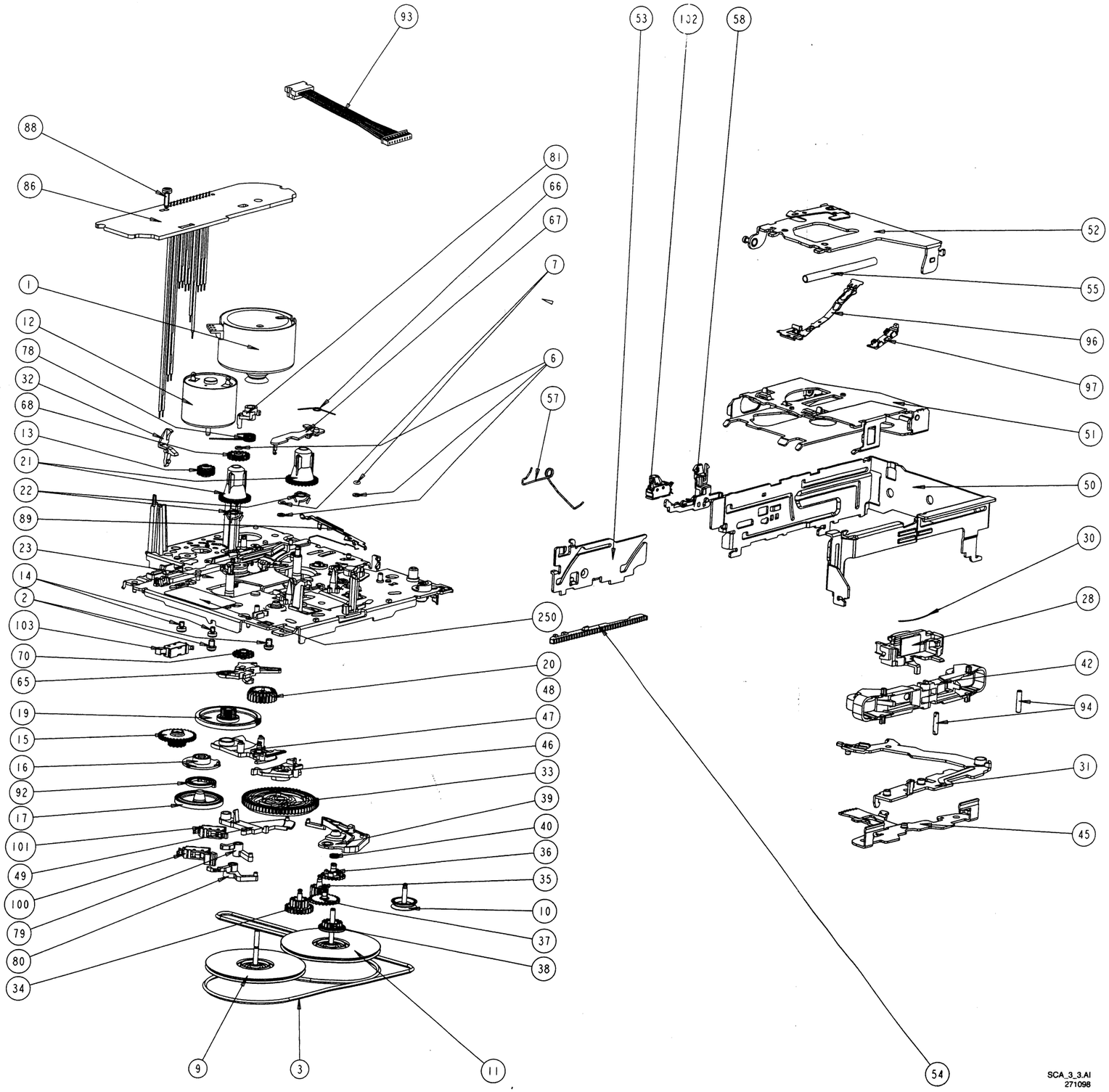

Figure 19

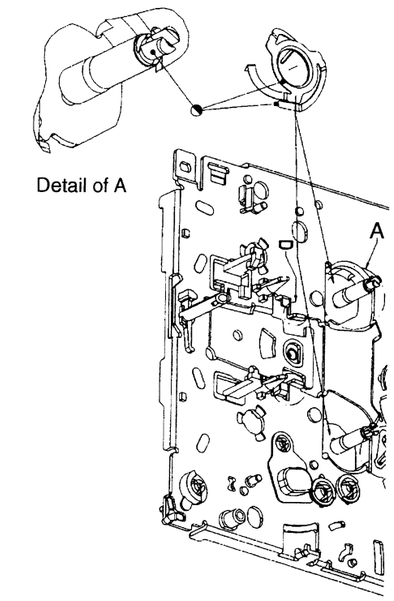

Figure 20

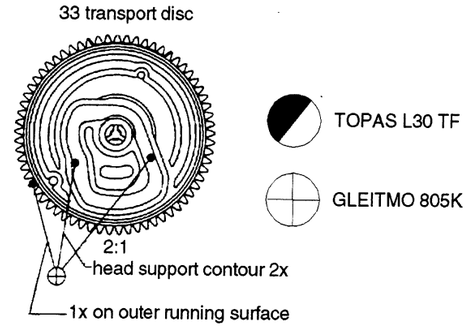

Figure 21

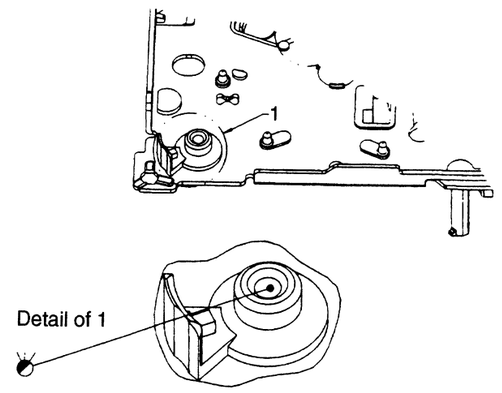

Figure 22

PCS 92 229

Philips Car Systems

automotive
mannesmann
VDO

Cassette Car Radio 22 DC 398/75
22 DC 398/75B

Service Manual

For repair information of the tape deck see Service Manual SCA-R/3.3 (4822 725 25481)

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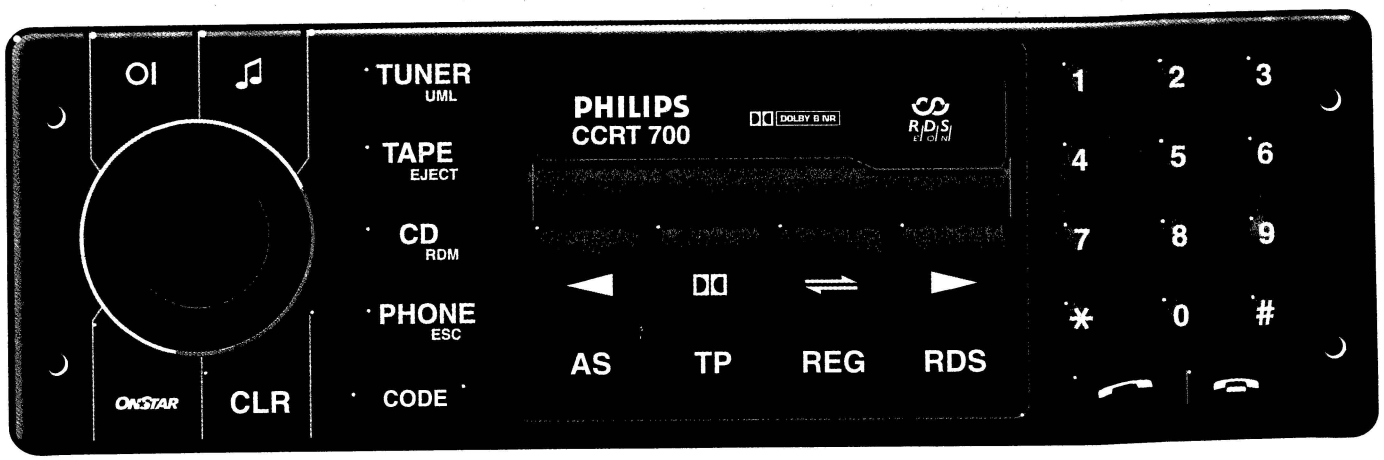

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- SOFAC 26
- Power Amplifier 27
- µ-Processor I 28
- µ-Processor II 29
- On/Off-Logic, CAN-Bus Interface 30
- Power Supply 31
- Front Connection 32
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- Microphone Interface, Common Mode 34
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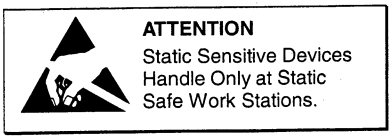
WARNING



All IC's and many other semiconductors are susceptible to electrostatic discharges (ESD).

Careless handling during repair may reduce the life time of these components drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

Appropriate ESD equipment is available under following service codes:

Complete kit ESD3	4822 310 10671
Wristband tester	4822 344 13999

GENERAL

The 22DC398/75 (CCRT 700) is a cassette car radio with CD changer control and integrated mobile phone.
The 22DC398/75B is adapted to the BOSE sound system. Differences between these version are marked in the circuit diagrams.

Additionally following versions are available:

22DC398/78	CCRT 700, P&A
22DC398/78E	CCRT 700, BOSE P&A
22DC398/78F	CCRT 700, refurbished
22DC398/78L	CCRT 700, BOSE refurbished

The radio is part of an audio system which consists of the components listed below:

- External display
- CD changer
- External microphone
- Handset
- Combined FM/AM/GSM-antenna or Combined FM/AM/GSM/GPS-antenna
- GPS module
- BOSE amplifier
- Steering wheel remote control

The application of some components is optional and has to be defined in the EEProm (refer to chapter *'EEProm Mapping'*).

GSM module

The telephone module is mounted at the back side of the CCRT 700. The so-called 'A1 module' is produced by Siemens. It is to be repaired at the Siemens World Service Center in Bocholt, Germany.

The exchange procedure is part of the Purchase Agreement. It is applicable only to the VCC Service Center in Wetzlar, Germany.

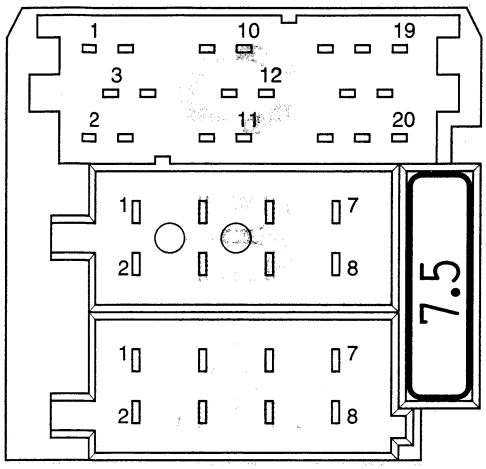
We recommend to use the 'Rohde&Schwarz CTS55' for measurements at the GSM module.
Defective modules have to be replaced and sent to the Siemens repair center.

ONSTAR

The ONSTAR service is optional.
Whenever the ONSTAR key is pressed the car radio transfers a message (SMS) to the service provider. The message contains the data of the GPS module from which the service provider can calculate the current location of the car.
For details regarding the ONSTAR service refer also to the 'Instruction for Use' (4822 736 16606).

Note that the ONSTAR service does not work with the test SIM-card.

Connection



A1:	N.c.
A2:	Steering wheel control
A3:	+ 12V Amp. remote
A4:	+ 12V Ignition key (Kl.15)
A5:	+ 12V Ant. remote / ext. handset
A6:	N.c.
A7:	+ 12V Battery (Kl.30)
A8:	GND
B1:	Speaker rear right RR+
B2:	Speaker rear right return RR–
B3:	Speaker front right FR+
B4:	Speaker front right return FR–
B5:	Speaker front left FL+
B6:	Speaker front left return FL–
B7:	Speaker rear left RL+
B8:	Speaker rear left return RL–
C1-1:	Handset micro audio +
C1-2:	Handset hook signal
C1-3:	Handset speaker audio +
C1-4:	Handset GND
C1-5:	N.c.
C1-6:	E-bus terminating impedance
C2-7:	E-bus (CAN-bus) data high
C2-8:	E-bus (CAN-bus) data high
C2-9:	Baud rate coding
C2-10:	E-bus (CAN-bus) data low
C2-11:	E-bus (CAN-bus) data low
C2-12:	KW82 data
C3-13:	Audio mute
C3-14:	CD left channel +
C3-15:	Ext. micro audio +
C3-16:	Ext. audio input +
C3-17:	CD ground
C3-18:	Ext. micro audio –
C3-19:	Ext. audio input –
C3-20:	CD right channel +

Diagram 1: Pinning connector block

Basic Design

Diagram 2 shows the top view of the card reader. The operation of the insert switch is taken over by the front edge of the SIM-card.

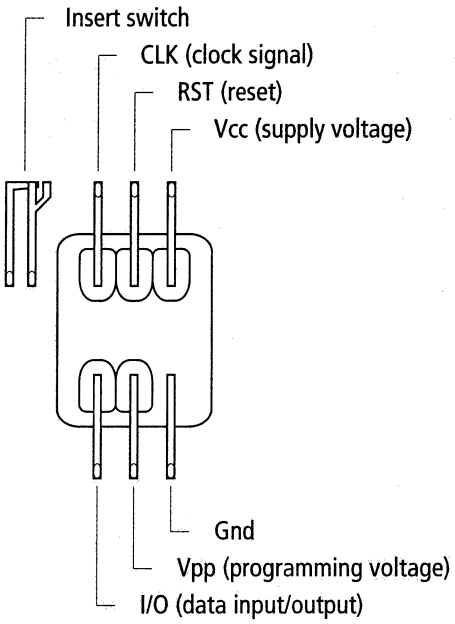


Diagram 2: Pinning card reader, top view

Diagram 3 shows the main components and connections of the set.

The µ-processor (pos. 7300) is connected to an external RAM (pos. 7301) and an external ROM (pos. 7303). The ROM contains the software of the set, i.e. do not exchange the µ-processor but the ROM when updating the software!
Due to better serviceability the first production sets are provided with a socket on position 7303.

The EEProm (pos. 7302) contains set dependent data such as the security code, user settings, production data and calibration data.
It can be programmed via the KW82-interface.

Diagram 4 shows the schematic wiring of the GSM module.

The audio signal of both the external microphone and the handset microphone are amplified and then applied to a switch which is controlled by the µ-processor.

After passing the common mode stage the signal output of the GSM module (AUDO) is led to the power amplifier of the sound system for handfree communication and to the handset, which has an integrated speaker amplifier.

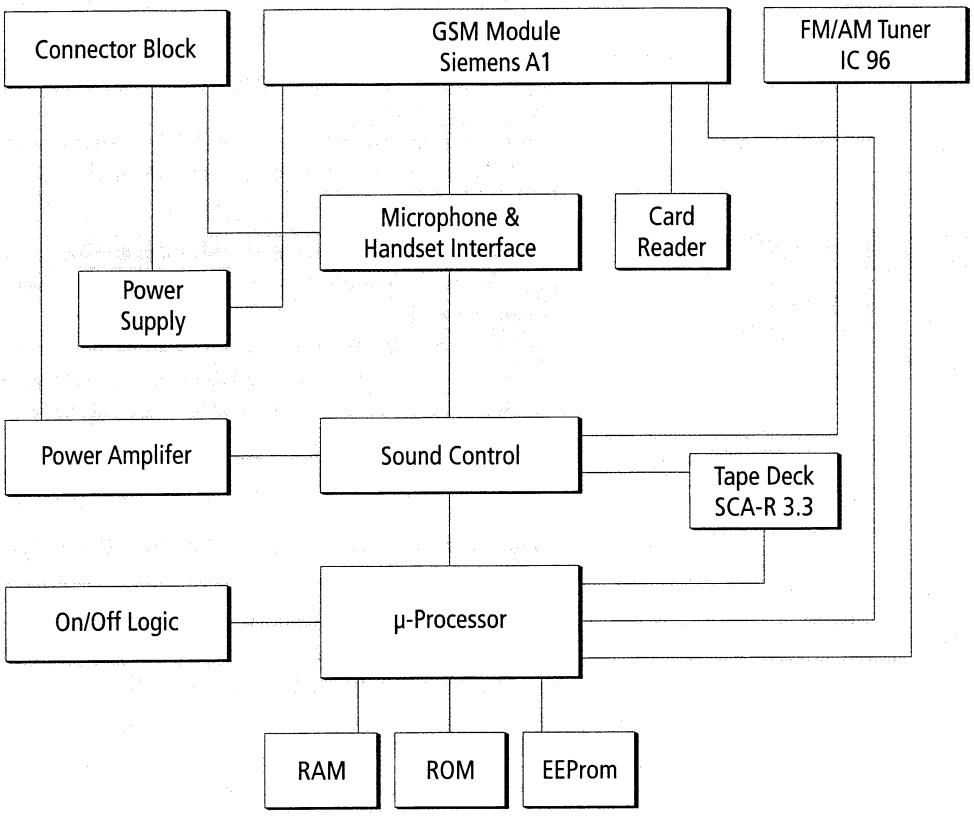


Diagram 3: Wiring diagram of the 22DC398

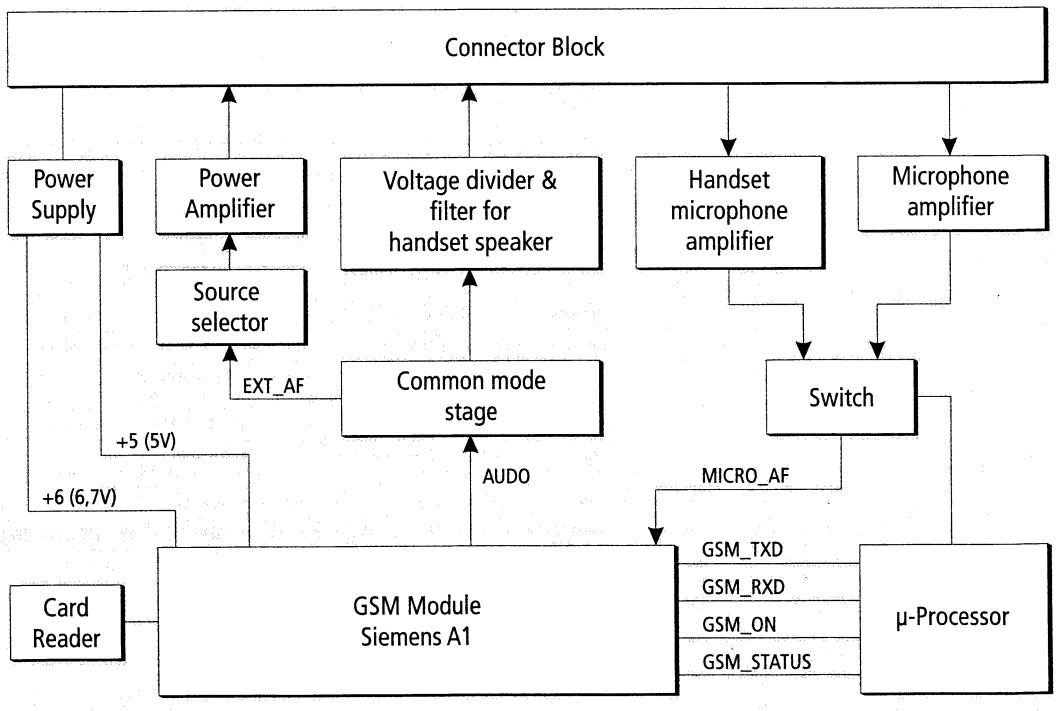


Diagram 4: Connection of the GSM module

MEASUREMENTS AND ALIGNMENTS

Measurement Conditions

Power supply: 14,4V

Output reference level:

22DC398/75: 0,5W/4Ω
22DC398/75B: 0,5V/1kΩ

Reference signal modulation:

FM: 98,0MHz / 22,5kHz / 66dBµV
MW: 1053kHz / 30% / 60dBµV
LW: 207kHz / 30% / 60dBµV
Tape: MTT-112BN 1kHz / 250nWb/m
CD: SBC 429 (Audio Signal Disc I)

Use antenna dummies as described in the diagrams below for all measurements and alignments.

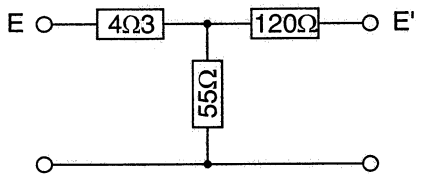


Diagram 5: FM-antenna

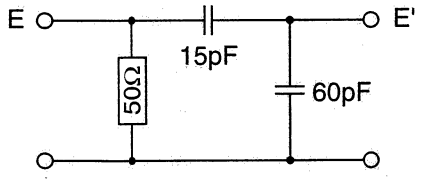


Diagram 6: AM-antenna

Note: Set E = E' for the FM-antenna, adjust an offset of 14dB at your RF-generator for the AM-antenna.

Tests and Alignments

How to program the EEProm (pos. 7302)

The EEProm can be programmed via the OPEL KW82 diagnosis-bus.
Connect the output of the KW82-interface card to pin C12 of the connector block. Start the Gateway-software by executing '`eep_prg.exe`'.

Use the KW82-interface for the calibration of the search levels, to program the security code and the status of delivery.
Besides you can read or write the entire EEProm data or only individual classes such as status bytes, failure bytes or set dependent data (serial number, production date etc.).

Refer to chapter '*EEProm Mapping*' for details.

Alignment of the search sensitivity levels

Select menu 'GATEWAY – Adjustments'. Follow the advice of the user guidance for proper calibration. Consider the 14dB level offset for the AM antenna dummy when calibrating the AM search level.

Dolby alignment

Insert the test tape TEAC MTT150.
Adjust pots R3795 and R3796 to get 387,5mV signal output at pins 1 and 24 (M375 and M362) of the Preamp/Dolby IC TEA0675T (pos. 7761).

Check of the noise detector

Adjust your RF-generator to
FM 98MHz / 75kHz / AF = 40kHz.

The DC voltage at M025 should be 2,7V ± 0,7V.

GSM module

We recommend to use the Rohde&Schwarz digital radio tester CTS55 to check the GSM module. The CTS55 contains an automatic test procedure which is sufficient to measure the standard parameters and to enable a good or bad judgement.

Run the 'AUTO TEST' procedure for testing the A1 module. The test routine should have been configured for 3-channel measurement.

Of course you can use any comparable mobile phone test equipment.

Hint: If the customer complains about the telephone functionality, do also check the card reader very carefully.

Test of the power supply

PIN	MP	Description	Voltage
1	M924	+10: 14,4V power supply	14,4V ± 0,2V
2	M912	+3: 8,5V switched	8,5V ± 0,35V
3	M911	+5: 5V switched	5V ± 0,25V
4	M916	+5_ONOFF: control signal for +5	< 1,5V = off > 2,7V = on
5	M914	RESET	< 0,8V = reset
6	M920	8V5_ONOFF: control signal for +3	< 1,5V = off > 2,7V = on
7	M918	ANT_ONOFF: control signal for +2c	< 1,5V = off > 2,7V = on
8	M913	V_LOW	< 0,8V = V-low
9	M915	Reset delay	3,5V ± 0,5V
10		GND	
11	M910	+4: 5V permanent	5V ± 0,25V
12	M919	Back up capacitor	13,9V ± 0,4V
13	M908	+2: 14,4V switched	13,9V + 0,5V - 0,4V

Table 7: TDA3608 (pos. 7457)

PIN	MP	Description	Voltage
1,2 4,5	M906	14V switched output	14,2V ± 0,4V
6		GND	
7	M921	6V7_ONOFF: control signal for +6	< 0,8V = off > 2,0V = on
11	M924	+10: 14,4V power supply	14,4V ± 0,2V

Table 8: VN02NSP (pos. 7456)

PIN	MP	Description	Voltage
1	M905	Adjustment	5,45V ± 0,27V
2	M904	+6: 6,7V for GSM	6,7V ± 0,25V
3	M906	14V input	14,2V ± 0,4V

Table 9: LT1085CT (pos. 7455)

Timings

Diagram 10 shows the timing after connecting the set to the power supply.

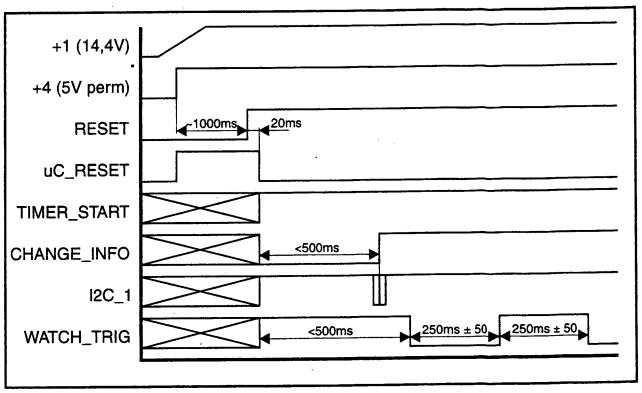


Diagram 10: Timing after first connection

Diagram 11 shows the timing after 'V-LOW', i.e. an undervoltage has been recognized.

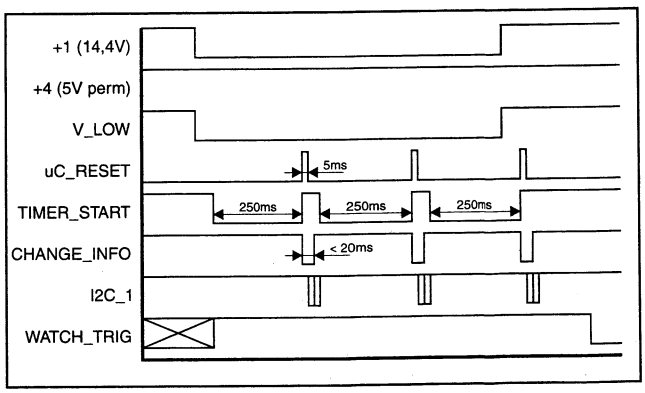


Diagram 11: Timing after V-LOW

Specification

General:

Quiescent current (U_B = 12,5V):	≤ 3mA	
Current at Vol min.:	≤ 820mA	
Output power (10% THD):	≥ 4 x $6W_{nom.}$	(22DC398/75)
Output level (98MHz / 75kHz / 1kHz):	$5V_{RMS}$ ± 1dB	(22DC398/75B)
Residual noise (vol min, A-wtd):	< 75µV	(22DC398/75B)

Level difference between sources:

FM 98MHz / 22,5kHz / 1kHz:	ref.
MW 1053kHz / 30% / 1kHz:	+ 4,5dB ± 2dB
LW 207kHz / 30% / 1kHz:	+ 4,5dB ± 2dB
Cassette 250nWb/m:	+ 14,5dB ± 2dB
CD AUDIO SIGNAL DISC I, tr. 37:	+ 14,5dB ± 2dB
external input (700mV at pin C16):	+ 14,5dB ± 2dB

FM Tuner:

Frequency range:	87,5–108MHz
Noise limited sensitivity for 26dB S/N:	≤ 10dBµV
S/N ratio (60dBµV):	> 57dB
S/N due to RF-signal interruption:	< -24dB
-3dB limiting:	15dBµV ± 2dB
Selectivity S200:	> 40dB
S400:	> 70dB
IF-rejection ratio IF1 = 72,2MHz:	> 70dB
IF2 = 10,7MHz:	> 90bB
Image rejection (IF1 = 72,2MHz, IF2 = 10,7MHz):	> 75dB
Large signal handling (75kHz, 30-54-100dBµV):	< 3%
RF distortion (75kHz, 60dBµV, 1kHz):	< 1%
Stereo separation (66dBµV):	> 30dB
Signal dependent stereo (12dB):	45dBµV ± 2dB
Search level 1:	54dBµV ± 2dB
2:	48dBµV ± 2dB
3:	42dBµV ± 2dB
4:	20dBµV ± 3dB
AUTOSTORE RDS transmitter:	25dBµV ± 3dB
AUTOSTORE non-RDS transmitter:	36dBµV ± 2dB

AM Tuner:

Frequency range MW 9kHz grid:	531–1602kHz
MW 10kHz grid:	530–1710kHz
LW:	153–279kHz
S/N ratio (66dBµV):	> 52dB
Noise limited sensitivity for 26dB S/N MW:	≤ 27dBµV
LW:	≤ 33dBµV
Max. gain sensitivity (for 0,5W output):	< 15dBµV

Selectivity S9:	> 50dB
S18:	> 56dB
IF-rejection ratio (IF1 = 470kHz, IF2 = 10,7MHz):	> 80dB
Image rejection (IF1 = 470kHz, IF2 = 10,7MHz):	> 65dB
Large signal handling 990kHz / 80% / 66dBµV:	< 2%
990kHz / 80% / 106dBµV:	< 10%
RF distortion 990kHz / 80% / 72dBµV / 1kHz:	< 3%
Search level 1:	54dBµV ± 2dB
2:	48dBµV ± 2dB
3:	42dBµV ± 2dB
4:	23dBµV ± 3dB
AUTOSTORE:	23dBµV ± 3dB

Cassette:

Tape speed (25°C, typ.):	4,76cm/s + 1% ± 1%
Wow & Flutter (MTT 111):	< 0,30% (DIN)
Channel separation (MTT 141N):	≥ 30dB
Channel X-talk (MTT 121N):	≥ 35dB
S/N (MTT 212N) Dolby Off:	≥ 50dB
Dolby On:	≥ 58dB

CD Single Player and CD Changer:

Channel separation 1kHz:	≥ 60dB
S/N (A-wtd.):	> 70dB

Steering wheel remote control (connector block pin A2):

without ext. load:	4,77V ± 0,2V
Steering wheel control connected:	4,25V ± 0,25V
Button 1 (–) pressed:	0,7V ± 0,28 V
Button 2 (+) pressed:	1,3V ± 0,28 V
Button 3 (o) pressed:	1,9V ± 0,28 V
Button 4 (>) pressed:	2,5V ± 0,28 V
Button 5 (<) pressed:	3,1V ± 0,28 V
Button 6 (–) pressed:	3,7V ± 0,28 V

EEProm Mapping

ID	Class Name	Item	Bytes
02	CL_PART_NO	1	9
03	CL_PRODUCTION	3	5
04	CL_PROD_NUMBER	1	15
16	CL_MW_STEP	1	1
17	CL_ERROR_MASK	1	5
18	CL_ERROR_CNT	1	5
19	CL_MAX_CONFIG_LIST_EBUS	1	2
20	CL_SWC_CONFIG	1	1
21	CL_ONSTAR_CONFIGURATION	1	8
22	CL_GSM_LANGUAGE	1	1
41	CL_CODE	2	2
42	CL_EEPROM_BYTE	32	1
44	CL_CALIBRATE	3	4
58	CL_REC_SEARCH_LEVEL	2	5
59	CL_STAT_TIMER	5	3
63	CL_SCA_RUNTIME	1	4

Table 12: EEProm mapping

CL_PART_NO

This is the OPEL part number in ASCII coded format.
90 533 441 = 22DC398/75
90 566 805 = 22DC398/75B (Bose)
90 118 660 = 22DC398/78 (P&A)
90 118 661 = 22DC398/78F (refurbished)
90 118 666 = 22DC398/78E (Bose P&A)
90 118 667 = 22DC398/78L (Bose refurbished)

CL_PRODUCTION

This class contains the hardware status, software status and production date in ASCII coded format.

Example:
Item 1 = 32 33 39 38 20 means hardware status of week 23 year 98.
Item 2 = 33 30 39 38 20 means software status of week 30 year 98.
Item 3 = 34 35 39 38 20 means production date is week 45 year 98.

CL_PROD_NUMBER

This is the serial number in ASCII coded format. When using command 'GATEWAY – Serialnumber Read/Write' you can read or insert the serialnumber without coding.

CL_MW_STEP

is used to set the tuning step logic and the frequency range of the MW band. 09 stands for the 9kHz grid (531–1602kHz, European band), 10 stands for the 10kHz grid (530–1710kHz, American band).

CL_ERROR_MASK

The error mask is set '0' for failures which are monitored and '1' for items which are masked because they are not relevant for the specified configuration.

Byte 1, Bit 0: EEProm defective
Bit 1: EEProm not programmed by OPEL
Bit 2: Key jammed
Bit 3: Detachable front not recognized
Bit 4: SWC (steering wheel control) short-circuited to Gnd
Bit 5: SWC not connected
Bit 6: SWC key jammed
Bit 7: not used
Default: 00 (hex)

Byte 2, Bit 0: CDC focus / TOC error
Bit 1: CDC servo error
Bit 2: CDC magazine eject error
Bit 3: CDC disc load error
Bit 4: CDC mechanism error
Bit 5: CDC temperature error
Bit 6: CDC disc eject error
Bit 7: not used
Default: 00 (hex)

Byte 3, Bit 0: CAN-bus class 19 not programmed
Bit 1: CAN-bus class 19 too small
Bit 2: CAN-bus node error
Bit 3: CAN-bus too many bus off states
Bit 4: CAN-bus lost communication with CDC
Bit 5: CAN-bus lost communication with MID
Bit 6: CAN-bus lost communication with GPS
Bit 7: not used
Default: 00 (hex)

Byte 4, Bit 0: Amp. remote short-circuited to Gnd
Bit 1: Amp. remote short-circuited to V_{batt}
Bit 2: Amp. remote not connected
Bit 3: Ant. remote short-circuited to Gnd
Bit 4: Ant. remote short-circuited to V_{batt}
Bit 5: Ant. remote not connected
Bit 6: Microphone short-circuited to Gnd
Bit 7: Microphone short-circuited to V_{batt}
Default: 00 (hex)

Byte 5, Bit 0: Speaker short-circuited to Gnd or V_{batt}
Bit 1: Ext. handset hook sign. not connected
Bit 2: GSM module too hot
Bit 3: SIM card or card reader defective
Bit 4: Onstar numbers not programmed
Bit 5: not used
Bit 6: not used
Bit 7: not used
Default: 00 (hex)

CL_ERROR_CNT

This class is used to mark failures acc. to the scheme described in CL_ERROR_MASK. If a failure has been detected, the respective bit is set '1'. After 20 times switching the set on and off without failure the bit is reset (intermittent failure).
The OPEL tester 'K1' can distinguish between permanent and intermittent failures immediately, however the set must not have been disconnected from the power supply, otherwise the information is lost.

CL_MAX_CONFIG_LIST_EBUS

contains information about the components which are connected to the E-bus system.

Radio: 02 (hex), 0000 0010 (bin)
CDC: 04 (hex), 0000 0100 (bin)
Display: 40 (hex), 0100 0000 (bin)
GPS: 80 (hex), 1000 0000 (bin)

0 = not connected
1 = connected

The configuration is defined by the result of the OR-operation of the list above.
So C6 (hex) or 1100 0110 (bin) means all above product are connected.

CL_SWC_CONFIG

00 = Steering wheel control not connected.
01 = Steering wheel control connected.

CL_ONSTAR_CONFIGURATION

The first byte of this class defines whether the ONSTAR service is active or not.

0 = deactivated
1 ... FF = activated

CL_GSM_LANGUAGE

00 = German	06 = Spanish
01 = English	07 = Italian
02 = Dutch	08 = Greek
03 = French	09 = Norwegian
04 = Finnish	0A = Swedish
05 = Danish	0B = Portuguese

CL_CODE

Use command 'GATEWAY – Security Code – Code Write' to program the security code.

CL_EEPROM_BYTE

You can operate the car radio without the detachable unit if you set item 18 of this class to FF hex. This might be helpful when investigating the card reader or when the set is disassembled.
Do not forget to reset this item to 5A hex (default) after repair!

CL_CALIBRATE

contains set specific calibration data. For calibration proceed as described in chapter *'Tests and Alignments'*.

CL_REC_SEARCH_LEVEL

contains the FM- and AM search levels. The levels are hex-coded and stated in dBµV.
(Example: 28 hex = 40 dec = 40dBµV)

CL_STAT_TIMER

contains the runtime counter of every single audio source.

Item 1 = Tuner
Item 2 = Tape deck
Item 3 = CD changer
Item 4 = Phone
Item 5 = AUX

The first two bytes of each item represent the hours low, the second two bytes the hours high and the last two bytes the minutes.

CL_SCA_RUNTIME

is the runtime counter of the tape deck.
The value is BCD coded and given in 'DDDDHHMM' (D = day, H = hour, M = minute).

Software Update

At the publication date of this Service Manual software releases RC104 and RC105 were available.

Proceed as described below to update the software from RC104 to RC105:

- Replace the ROM RC104 at pos. 7303 with RC105.
- Use the KW82-interface to update the software of the EEProm (pos. 7302).
  Select the type version, i.e. 22DC398/78F.
  Execute 'GATEWAY – Fast EEProm' to overwrite the complete EEProm (the same data for all versions).
  Execute 'Delivery Status' to program the version-specific settings.

Replacement of an EEProm:

Command 'GATEWAY – Fast EEProm – Fast EEProm' is used to program the entire EEProm.
Note that spare EEProm's delivered from Consumer Service Eindhoven are preprogrammed already. For that reason you need not write the entire EEProm after replacement, but you can select command 'GATEWAY – Fast EEProm – Delivery Status' to program the version-specific settings. However please check the Romcode of the EEProm before. Carry out the calibration and program the security code. To complete the programming write classes CL_PRODUCTION and CL_PROD_NUMBER.

Test Mode

The test mode consists of three separate parts.
- 'Test mode A' treats the RDS performance.
- 'Test mode B' treats the GSM module.
- 'Test mode C' treats the GPS receiver.

Proceed as described in the flow chart below to enter the test modes.

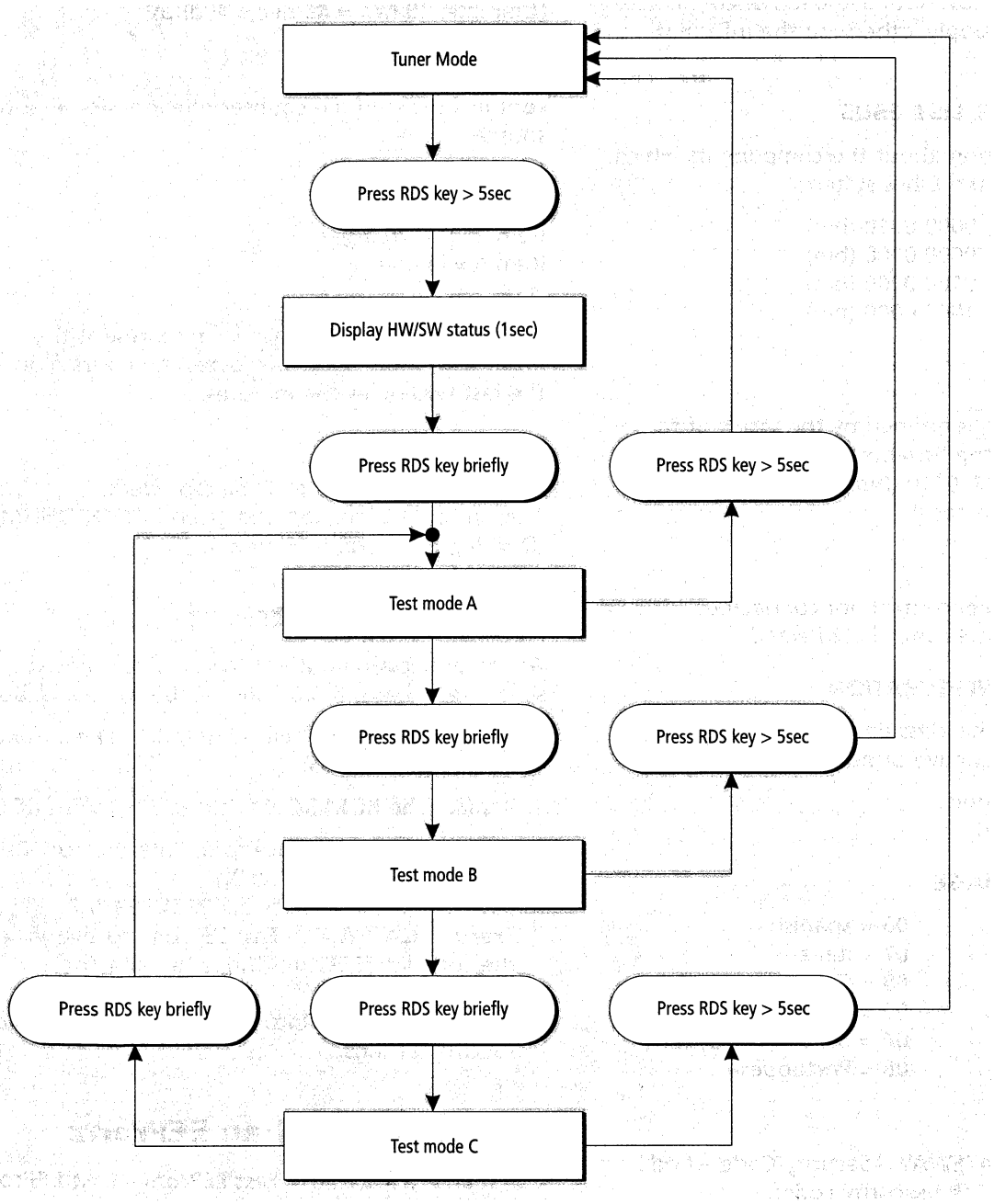


Diagram 13: Test mode routine

Test mode A

Test mode A allows you to monitor the quality of the RF-signal and the RDS data processing. Diagram 14 shows the display unit during the test mode. Use table 15 to interpret the parameters.

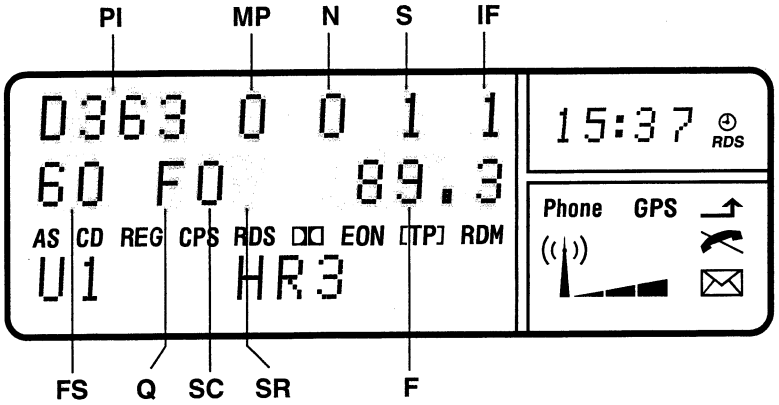


Diagram 14: Indication of the display unit during Test mode A

Digit	Meaning	Content, Range	Value
PI	PI code	PI code of the current station	0000 ... FFFF
MP	Multipath	0% 15% 22% 28% 34% 40% 46% 52%	0 1 2 3 4 5 6 7
N	Noise	0 (good) ... F (bad)	0 ... F
S	RDS Synchronization	No synchronization Synchronization	0 1
IF	IF measurement	IF bad IF good	0 1
FS	Field strenght	0 ... 70dBµV	0 ... 70
Q	Quality	0 (bad) ... F (good signal quality)	0 ... F
SC	Suppression counter	AF switching is delayed until this value is 9	0 ... 9
SR	AF switching reason	0 = not used 1 = weak field strenght 2 = weak multipath 3 = weak field strenght and weak multipath 4 = strong multipath 5 = strong multipath and weak field strenght 6 = very strong multipath 7 = very strong multipath and weak field strenght 8 = adjacent channel distortion 9 = adjacent channel distortion and weak field strenght A = adjacent channel distortion and weak multipath B = adjacent channel distortion, weak multipath and weak field strenght C = adjacent channel distortion and strong multipath D = adjacent channel distortion, strong multipath and weak field strenght E = adjacent channel distortion and very strong multipath F = adjacent channel distortion, very strong multipath and weak field strenght	0 ... F
F	Frequency tuned	87.5MHz ... 108.0MHz	87.5 ... 108.0

Table 15: Test mode A, explanation of the parameters

The front LED is used to indicate AF change requests.

LED On = AF change requested
LED Off = No AF change requested

Test mode B

Test mode B allows you to monitor the signal quality of the GSM module. In diagram 16 you see the structure of the indication during the test mode. Table 17 explains the meaning of the parameters.

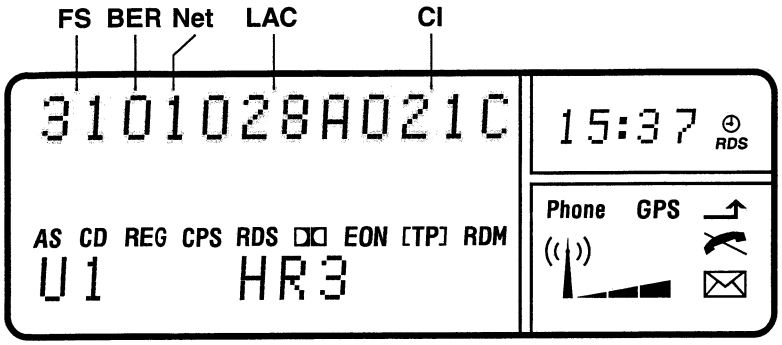


Diagram 16: Indication of the display unit during Test mode B

Digit	Meaning	Content, Range	Value
FS	Field strenght	< -113dBm ... -53dBm > -51dBm unknown	00 ... 30 31 99
BER	Block error rate	< 0,2% < 0,4% < 0,8% < 1,6% < 3,2% < 6,4% < 12,8% > 12,8% not available	0 1 2 3 4 5 6 7 F
Net	Network State A1 module	not logged in, not searching logged in not logged in, searching log in denied by network unknown registered, roaming	0 1 2 3 4 5
LAC	Local Area Code		0 ... F
CI	Cell Identification		0 ... F

Table 17: Test mode B, explanation of the parameters

Test mode C

Test mode C shows the longitude and latitude of the current position. These data are provided by the GPS module which is connected to the E-bus of the system.

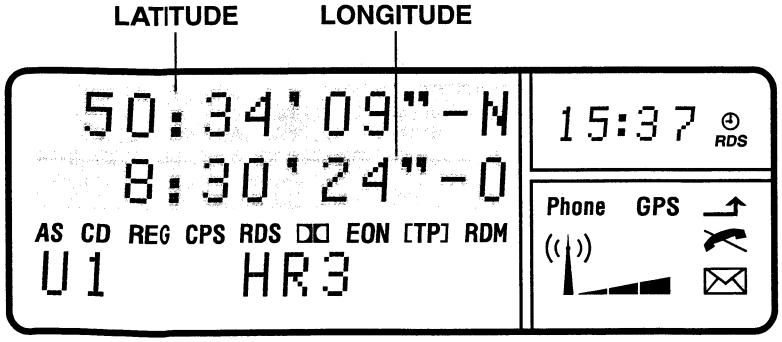


Diagram 18: Indication of the display unit during Test mode C

SIGNAL DESCRIPTION – INTERCONNECTION

Following is a short description of the in- and output signals of each circuit diagram in alphabetic order. In addition this overview should help to trace the signals. Refer to column "Connected to" to find the name of the circuit diagram passing on the signal.

Signal	Description	Connected to
+1	14,4V perm.	
+2	14,4V switched	
+2c	Autom. antenna control (C-block)	
+3	8,5V switched	
+3a	8,5V switched and buffered	
+4	5V perm.	
+5	5V switched	
+6	6,7V supply GSM module	
+10	14,4V perm. filtered	
+5_ONOFF	Control line for 5V output of TDA3608 High = ON Low = OFF	Power Supply **&** µ-Processor
6V7_ONOFF	Control line for 6,7V output High = ON Low = OFF	Power Supply **&** µ-Processor
8V5_ONOFF	Control line for 8,5V output of TDA3608 High = ON Low = OFF	Power Supply (2x) **&** µ-Processor
A7_SENSE	4,22V for U_{batt} = 24V 2,82V for U_{batt} = 16V 1,76V for U_{batt} = 10V 1,23V for U_{batt} = 7V	Power Supply **&** µ-Processor
AMP_REMOTE	BOSE amplifier control (C-block) For U < 8V the amp switches OFF after 10ms. For U > 9,5V the amp switches ON after 1,5s.	Power Supply **&** Connector Block
AMP_STBY	High = Mute	Power Amplifier **&** µ-Processor
ANT_DIAG	Diagnosis antenna supply U > 2V = short circuit to 14V 1,7V > U > 1,2V = output open U < 1,15V = o.k.	Power Supply **&** µ-Processor
ANT_ONOFF	Automatic antenna control (internal) High = ON Low = OFF	Power Supply **&** µ-Processor
AUDO	AF signal GSM module	Microphone Interface, Common Mode **&** GSM-Module, SCA-R Deck
AUDO_GND	Signal GND GSM module	Microphone Interface, Common Mode **&** GSM-Module, SCA-R Deck
BACK_UP		Power Supply (internal)
BAUD_RATE	U > 2,5V = 200Baud U < 1V = 5Baud	Connector Block **&** µ-Processor
BLEEP	Bleep	SOFAC **&** µ-Processor
BLEEP I	Bleep	SOFAC (internal)
BLINK_LED	Output for LED (I_{max} = 20mA)	On/Off-Logic, CAN-Bus Interface **&** Front Connection
BOOST_DIAG		Power Supply **&** µ-Processor

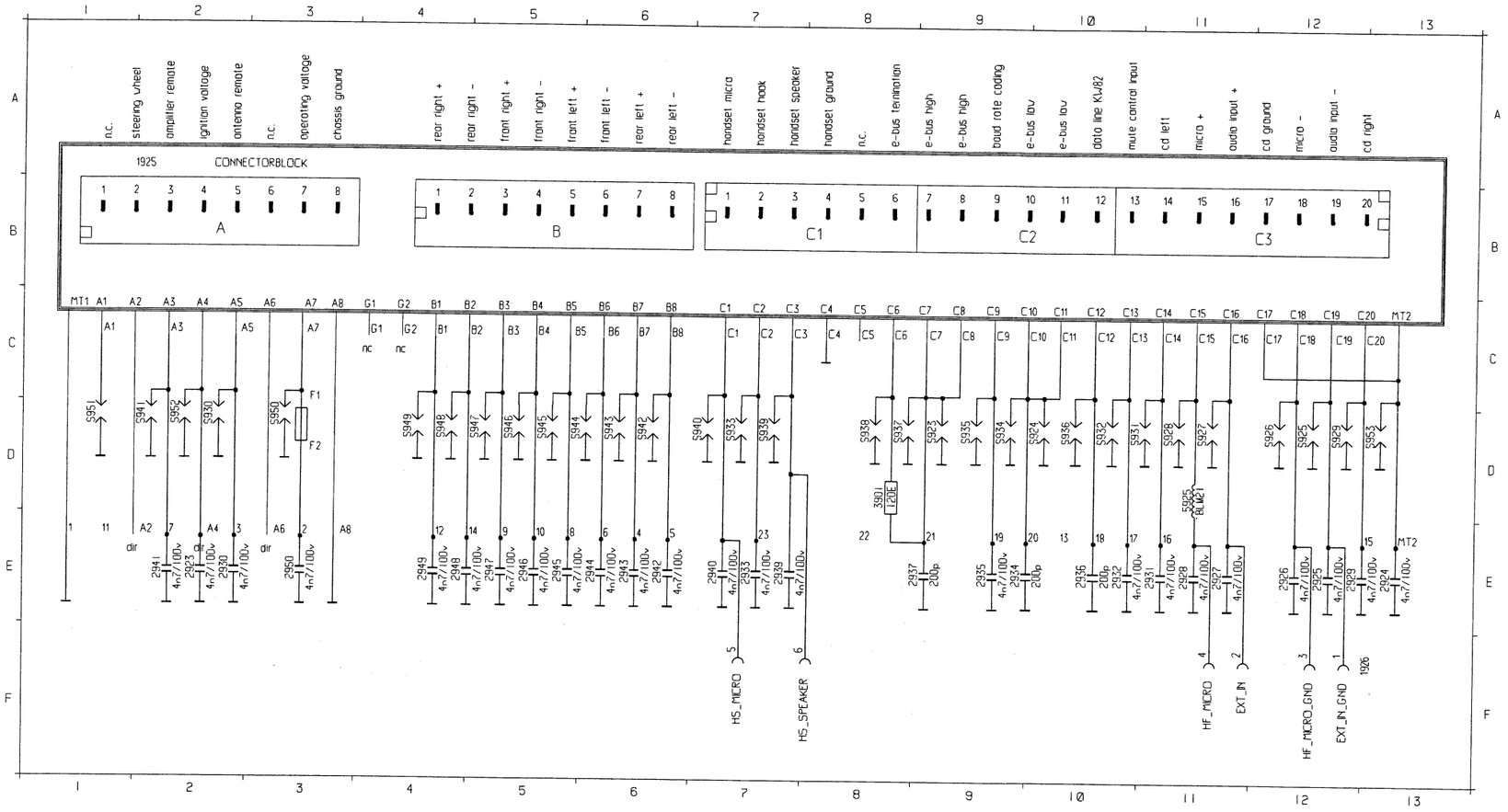
Signal	Description	Connected to
BOOST_ONOFF	BOSE amplifier control (internal) High = ON Low = OFF	Power Supply & µ-Processor
CAN_HIGH	CAN bus line	On/Off-Logic, CAN-Bus Interface & Connector Block
CAN_LOW	CAN bus line	On/Off-Logic, CAN-Bus Interface & Connector Block
CAN_RXD		On/Off-Logic, CAN-Bus Interface & µ-Processor
CAN_STBY	High = Standby mode	On/Off-Logic, CAN-Bus Interface & µ-Processor
CAN_TXD		On/Off-Logic, CAN-Bus Interface & µ-Processor
CASS_L	Tape deck left channel	SOFAC & Preamp Tape Deck, Dolby
CASS_R	Tape deck right channel	SOFAC & Preamp Tape Deck, Dolby
CD_L	CD changer left channel	SOFAC & Connector Block
CD_R	CD changer right channel	SOFAC & Connector Block
CHANGE_INFO	Indicates changes in status of ONOFF logic Low = active	On/Off-Logic, CAN-Bus Interface & µ-Processor
CLIP_DET		Power Amplifier & µ-Processor
CRQ		GSM-Module, SCA-R Deck & µ-Processor
DETACH_UX		Front Connection & µ-Processor
DIAG_KW82	Data line diagnosis bus	On/Off-Logic, CAN-Bus Interface & Connector Block
DIAG_MICRO	Diagnosis micro input U > 2,7V = short circuit to 14V 2,7V > U > 1,4V = o.k. U < 0,2V = short circuit to GND	Microphone Interface, Common Mode & µ-Processor
DIAG_RXD		Connector Block & µ-Processor (2x)
DIAG_TXD		Connector Block & µ-Processor
DOLBY_ONOFF		Preamp Tape Deck, Dolby & µ-Processor
EN_PWD	Enable power down mode	On/Off-Logic, CAN-Bus Interface & µ-Processor
EXT_AF	AF signal of GSM module or external input	SOFAC & Microphone Interface, Common Mode
EXT_IN	AF signal of external input	Microphone Interface, Common Mode & Connector Block Assy
EXT_IN_GND	Signal GND of external input	Microphone Interface, Common Mode & Connector Block Assy
EXT_MUTE	Status ext. audio input High = deactivated Low = active	Connector Block & On/Off-Logic, CAN-Bus Interface
GSM_ON		GSM-Module, SCA-R Deck & µ-Processor
GSM_RXD		GSM-Module, SCA-R Deck & µ-Processor
GSM_STATUS		GSM-Module, SCA-R Deck & µ-Processor
GSM_TXD		GSM-Module, SCA-R Deck & µ-Processor
HF_MICRO	AF signal handfree microphone	Microphone Interface, Common Mode & Connector Block Assy
HF_MICRO_GND		Microphone Interface, Common Mode & Connector Block Assy
HS_INFO	Handset status info UHS_INFO > 4,5V = ext. handset lifted 2,5V > UHS_INFO > 1,5V = no ext. handset UHS_INFO < 1,0V = ext. handset hung up	Connector Block & µ-Processor

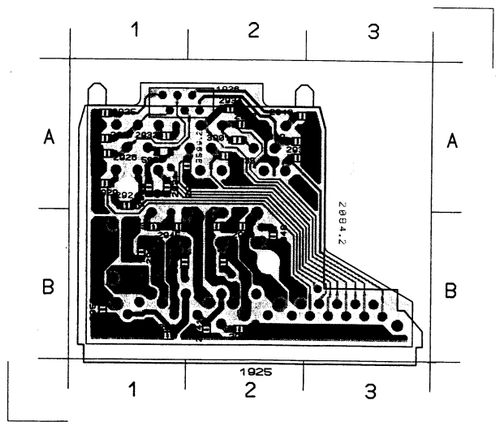
Signal	Description	Connected to
HS_MICRO	AF signal handset microphone	Microphone Interface, Common Mode & Connector Block Assy
HS_SPEAKER	AF signal handset speaker	Microphone Interface, Common Mode & Connector Block Assy
IGN_KEY	Ignition key Low = Ignition Off	On/Off-Logic, CAN-Bus Interface & Connector Block
ILLGND_ON		Front Connection & µ-Processor
ILLUM_PWM		Front Connection & µ-Processor
INLOCK	High = PLL locked Low = PLL unlocked	Tuner, RDS, Noise & µ-Processor
INSERT_SW	High = Tape inserted Low = Eject position	On/Off-Logic, CAN-Bus Interface & GSM-Module, SCA-R Deck
KEY_0	Key matrix	Front Connection & µ-Processor
KEY_1	Key matrix	Front Connection & µ-Processor
KEY_2	Key matrix	Front Connection (2x) & µ-Processor
KEY_3	Key matrix	Front Connection & µ-Processor
KEY_4	Key matrix	Front Connection & µ-Processor
KEY_5	Key matrix	Front Connection & µ-Processor
KEY_A	Key matrix	Front Connection & µ-Processor
KEY_B	Key matrix	Front Connection (2x) & µ-Processor
KEY_C	Key matrix	Front Connection & µ-Processor
KEY_D	Key matrix	Front Connection & µ-Processor
KEY_E	Key matrix	Front Connection & µ-Processor
LEVEL	Level indication	Tuner, RDS, Noise & µ-Processor
LF_OUT		Power Amplifier & Connector Block
LR_OUT		Power Amplifier & Connector Block
ME/FE_SW	Me/Ferro switch of the tape deck	Preamp Tape Deck, Dolby & µ-Processor
MICRO_AF	Micro input GSM module	Microphone Interface, Common Mode & GSM-Module, SCA-R Deck
MSS_OUT		Preamp Tape Deck, Dolby & µ-Processor
NOISE		Tuner, RDS, Noise & µ-Processor
ONOFF_SW	On/Off button Low = pressed	On/Off-Logic, CAN-Bus Interface & Front Connection
PAUSE		Tuner, RDS, Noise & µ-Processor
RCL		Tuner, RDS, Noise & µ-Processor
RDA		Tuner, RDS, Noise & µ-Processor
REF		SOFAC (internal)
RESET	Reset for first connection and faulty 5V supply	Power Supply & On/Off-Logic, CAN-Bus Interface (2x)
RF_OUT		Power Amplifier & Connector Block
ROT_SW_A		Front Connection & µ-Processor
ROT_SW_B		Front Connection & µ-Processor
RR_OUT		Power Amplifier & Connector Block

Signal	Description	Connected to
SCA_RESET		GSM-Module, SCA-R Deck & µ-Processor
SCL_1	I²C clock line	On/Off-Logic, CAN-Bus Interface & µ-Processor
SCL_2	I²C clock line	SOFAC & Tuner, RDS, Noise & µ-Processor
SCL_3	I²C clock line	GSM-Module, SCA-R Deck & µ-Processor
SDA_1	I²C data line	On/Off-Logic, CAN-Bus Interface & µ-Processor
SDA_2	I²C data line	SOFAC & Tuner, RDS, Noise & µ-Processor
SDA_3	I²C data line	GSM-Module, SCA-R Deck & µ-Processor
SKIP		Preamp Tape Deck, Dolby & µ-Processor
SOFAC_MUTE	Low = Mute	SOFAC & µ-Processor
SOS_SW	ONSTAR key on front unit Low = pressed	On/Off-Logic, CAN-Bus Interface & Front Connection
STEER_WHEEL		Connector Block & µ-Processor
SUM_LF	SOFAC output left front channel	SOFAC & Power Amplifier
SUM_LR	SOFAC output left rear channel	SOFAC & Power Amplifier
SUM_RF	SOFAC output right front channel	SOFAC & Power Amplifier
SUM_RR	SOFAC output right rear channel	SOFAC & Power Amplifier
SW_EXT_GSM	High = EXT_NF connect to SOFAC Low = GSM connect to SOFAC	Microphone Interface, Common Mode & µ-Processor
SW_HS_HF	High = handfree micro connect to MICRO_AF Low = handset micro connect to MICRO_AF	Microphone Interface, Common Mode & µ-Processor
TAPE_SW	TAPE key on front unit Low = pressed	On/Off-Logic, CAN-Bus Interface & Front Connection
TEMP	not used	Power Amplifier & µ-Processor
TIMER_START	High to Low transition starts 250ms timer (only during V-low sequence)	On/Off-Logic, CAN-Bus Interface & µ-Processor
TRACK	Track A/B selection of tape deck	Preamp Tape Deck, Dolby & µ-Processor
TU_L	Tuner left channel output	Tuner, RDS, Noise & SOFAC
TU_R	Tuner right channel output	Tuner, RDS, Noise & SOFAC
uC_RESET	Low = Reset µ-processor	On/Off-Logic, CAN-Bus Interface & µ-Processor
V_LOW	Sense line for undervoltage High = o.k. Low = Voltage drop	Power Supply & µ-Processor
V_REF	Vref = 4,1V	Tuner, RDS, Noise & µ-Processor
VM		Microphone Interface, Common Mode (internal)
WATCH_TRIG	Watchdog trigger	On/Off-Logic, CAN-Bus Interface & µ-Processor

CONNECTOR BLOCK ASSY

1925	A	1	2926	E	12	2931	E	11	2936	E	10	2942	E	6	2947	E	5	5925	D	11	S927	D	11	S932	D	10	S937	D	8	S942	D	6	S947	D	5	S952	D	2
1926	F	13	2927	E	11	2932	E	10	2937	E	9	2943	E	6	2948	E	4	S923	D	9	S928	D	11	S933	D	7	S938	D	8	S943	D	6	S948	D	4	S953	D	13
2923	E	2	2928	E	11	2933	E	7	2939	E	7	2944	E	6	2949	E	4	S924	D	10	S929	D	12	S934	D	9	S939	D	7	S944	D	5	S949	D	4			
2924	E	13	2929	E	12	2934	E	9	2940	E	7	2945	E	5	2950	E	3	S925	D	12	S930	D	2	S935	D	9	S940	D	7	S945	D	5	S950	D	3			
2925	E	12	2930	E	2	2935	E	9	2941	E	2	2946	E	5	3901	D	8	S926	D	12	S931	D	10	S936	D	10	S941	D	2	S946	D	5	S951	D	1			





1926	A	1	2937	A	2
2923	B	2	2939	A	2
2924	A	1	2940	A	2
2925	A	1	2941	B	2
2926	A	1	2942	B	1
2927	A	1	2943	B	1
2928	A	1	2944	B	1
2929	A	1	2945	B	1
2930	B	1	2946	B	2
2931	A	1	2947	B	2
2932	A	1	2948	B	2
2933	A	2	2949	B	2
2934	A	2	2950	B	1
2935	A	2	3901	A	2
2936	A	1	5925	A	1

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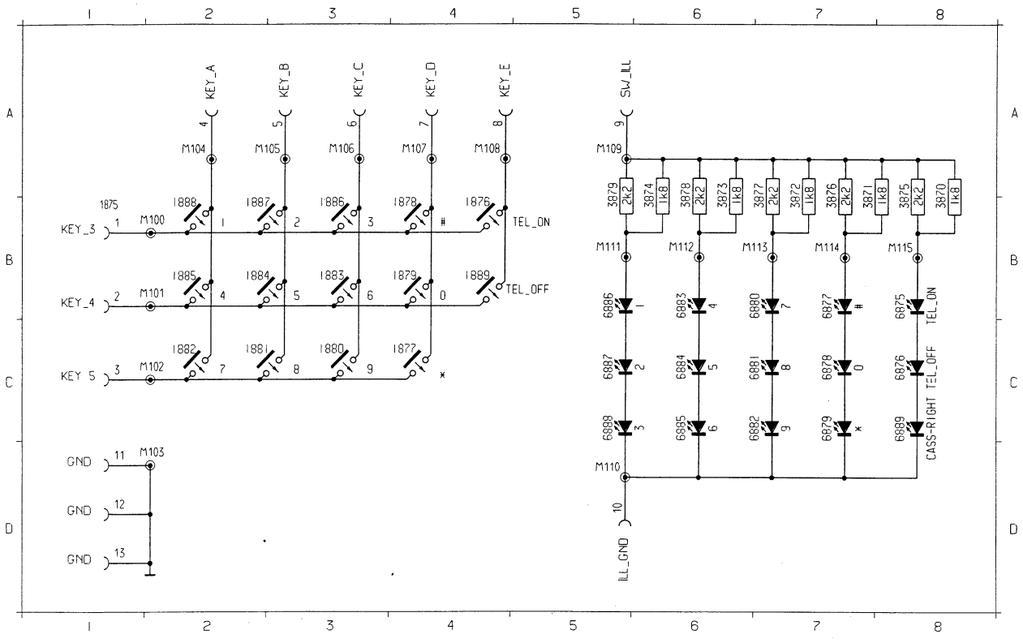
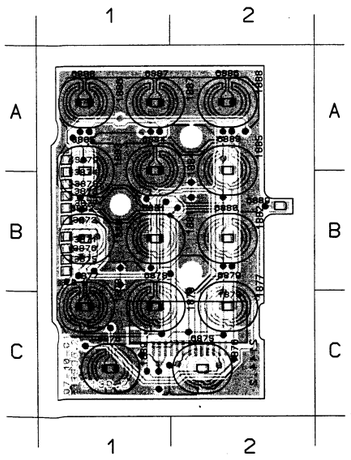
FRONT

PWB Keyboard Phone

1875	B	1	1883	B	3	3871	A	7	3879	A	5	6882	C	7
1876	B	4	1884	B	2	3872	A	7	6875	B	8	6883	B	6
1877	C	4	1885	B	2	3873	A	6	6876	C	8	6884	C	6
1878	B	4	1886	B	3	3874	A	6	6877	B	7	6885	C	6
1879	B	4	1887	B	2	3875	A	8	6878	C	7	6886	B	5
1880	C	3	1888	B	2	3876	A	7	6879	C	7	6887	C	5
1881	C	2	1889	B	4	3877	A	7	6880	B	7	6888	C	5
1882	C	2	3870	A	8	3878	A	6	6881	C	7	6889	C	8

M100	B	1	M108	A	4			
M101	B	1	M109	A	5			
M102	C	1	M110	D	5			
M103	D	1	M111	B	5			
M104	A	2	M112	B	6			
M105	A	2	M113	B	6			
M106	A	3	M114	B	7			
M107	A	4	M115	B	8			

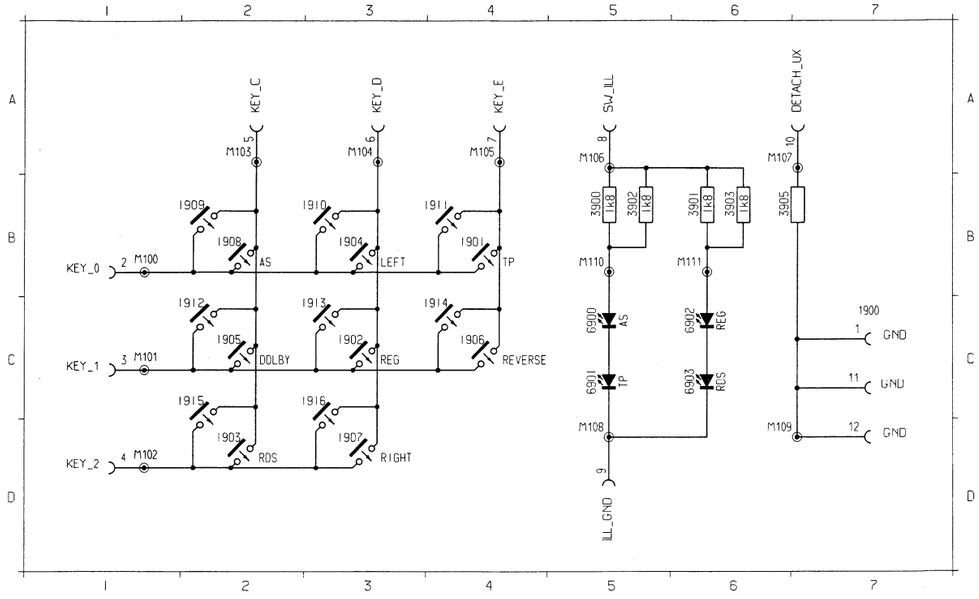




1875	C	2	3875	B	1			
1876	C	2	3876	B	1			
1877	C	2	3877	B	1			
1878	C	1	3878	B	1			
1879	C	1	3879	A	1			
1880	B	1	6875	C	2			
1881	B	1	6876	C	1			
1882	B	2	6877	C	1			
1883	A	1	6878	C	1			
1884	A	1	6879	C	2			
1885	A	2	6880	B	2			
1886	A	1	6881	B	1			
1887	A	1	6882	B	1			
1888	A	2	6883	A	2			
1889	C	1	6884	A	1			
3870	B	1	6885	A	1			
3871	B	1	6886	A	2			
3872	B	1	6887	A	1			
3873	B	1	6888	A	1			
3874	B	1	6889	B	2			

PWB Detachable Front

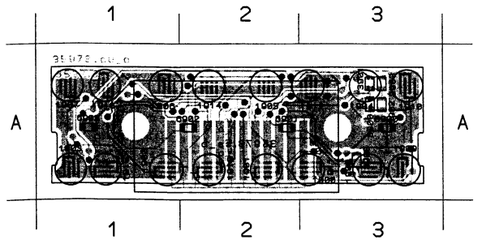
1900	C	7	1908	B	2	1916	C	3	6902	C	6	M106	A	5
1901	B	4	1909	B	2	3900	B	5	6903	C	6	M107	A	6
1902	C	3	1910	B	3	3901	B	6	M100	B	1	M108	D	5
1903	D	2	1911	B	4	3902	B	5	M101	C	1	M109	D	6
1904	B	3	1912	C	2	3903	B	6	M102	D	1	M110	B	5
1905	C	2	1913	C	3	3905	B	6	M103	A	2	M111	B	6
1906	C	4	1914	C	4	6900	C	5	M104	A	3			
1907	D	3	1915	C	2	6901	C	5	M105	A	4			



Note: The value of resistor 3905 is selected randomly. When attaching a new keyboard, the set indicates 'PANEL'. Insert the security code in order to match keyboard and head unit.

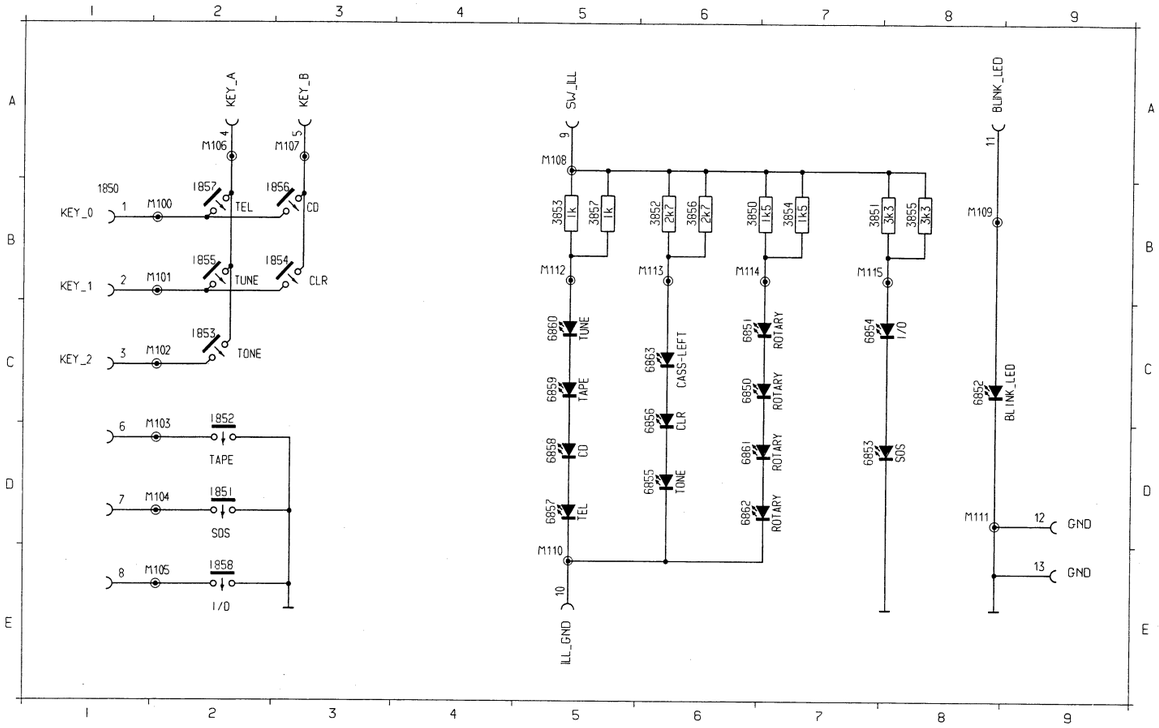
1900	A	2	1907	A	1	1914	A	2
1901	A	2	1908	A	3	1915	A	1
1902	A	1	1909	A	3	1916	A	1
1903	A	1	1910	A	3	3900	A	3
1904	A	3	1911	A	3	3901	A	3
1905	A	2	1912	A	3	3902	A	3
1906	A	1	1913	A	2	3903	A	3

3905	A	3			
6900	A	3			
6901	A	2			
6902	A	2			
6903	A	1			

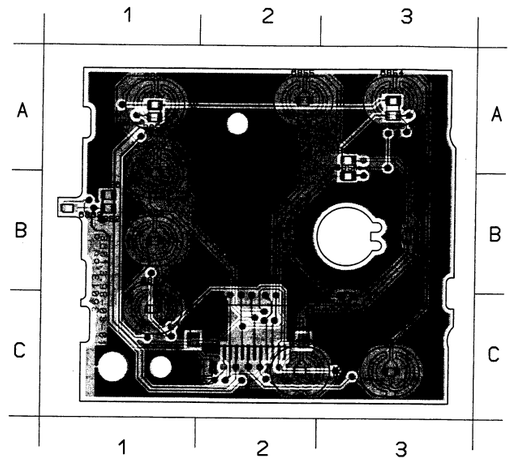


PWB Front Rotary

1850	B	1	1858	E	2	3857	B	5	6857	D	5	M101	B	1	M109	B	8
1851	D	2	3850	B	6	6850	C	6	6858	D	5	M102	C	1	M110	E	5
1852	D	2	3851	B	7	6851	C	6	6859	C	5	M103	D	1	M111	D	8
1853	C	2	3852	B	6	6852	C	8	6860	C	5	M104	D	1	M112	B	5
1854	B	3	3853	B	5	6853	D	7	6861	D	6	M105	E	1	M113	B	5
1855	B	2	3854	B	7	6854	C	7	6862	D	6	M106	A	2	M114	B	6
1856	B	3	3855	B	8	6855	D	6	6863	C	6	M107	A	2	M115	B	7
1857	B	2	3856	B	6	6856	C	6	M100	B	1	M108	A	5			



1850	C	2	1858	A	3	3857	A	1	6857	C	1
1851	C	3	3850	B	3	6850	B	2	6858	B	1
1852	B	1	3851	A	3	6851	B	3	6859	B	1
1853	A	2	3852	B	1	6852	C	2	6860	A	1
1854	C	2	3853	A	1	6853	C	3	6861	C	3
1855	A	1	3854	A	3	6854	A	3	6862	B	3
1856	B	1	3855	A	3	6855	A	2	6863	B	1
1857	C	1	3856	B	1	6856	C	2			



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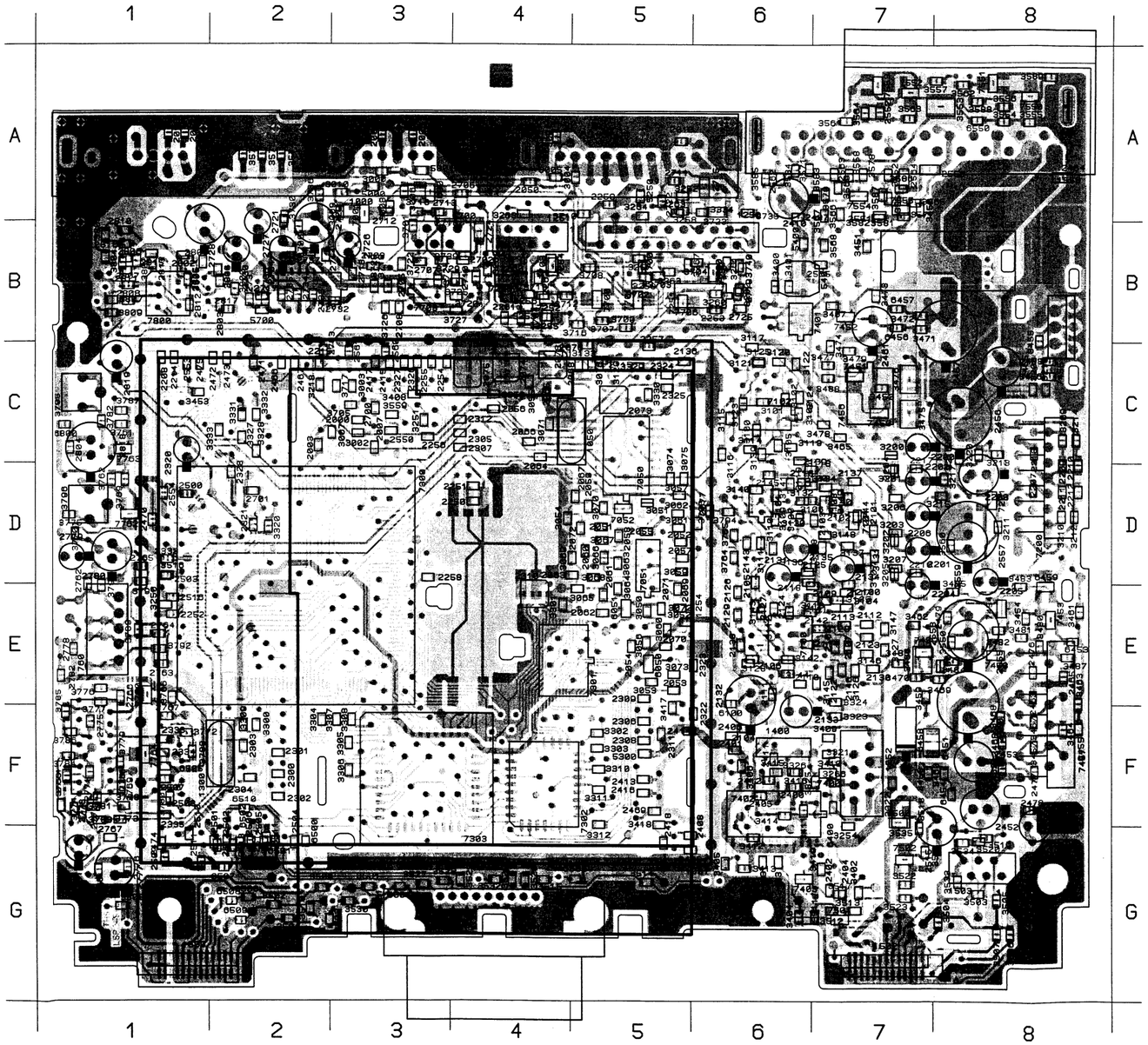
LAYOUT MAIN PWB

View A



1000	A	3	2124	E	6	2328	D	2	2558	E	8	2813	B	1
1001	E	3	2125	D	6	2332	D	1	2559	D	8	2814	B	2
1050	C	5	2126	E	6	2333	F	1	2560	C	3	2815	B	1
1250	B	5	2127	E	6	2334	F	1	2561	C	3	2816	B	1
1251	B	4	2128	E	7	2335	F	1	2562	A	6	2817	B	2
1252	F	7	2129	E	6	2400	F	6	2563	A	7	2818	C	1
1254	E	4	2130	E	7	2401	F	6	2564	A	7	2819	C	1
1300	F	2	2131	D	6	2402	G	7	2565	B	7	3000	A	3
1400	F	6	2132	E	6	2403	G	6	2700	C	3	3001	A	4
1500	G	1	2133	F	6	2404	G	7	2701	D	2	3002	C	3
1501	G	4	2134	D	7	2405	F	6	2702	B	4	3003	C	3
1502	G	7	2135	D	6	2406	F	6	2703	C	2	3004	A	5
1503	G	8	2136	C	5	2407	A	6	2704	B	2	3005	A	4
1550	A	8	2137	D	7	2408	G	5	2705	B	3	3006	A	3
1700	B	3	2138	E	6	2409	G	5	2706	A	4	3007	C	3
1760	E	1	2139	D	7	2410	A	6	2707	B	3	3008	A	3
2000	C	3	2140	D	7	2411	F	6	2708	B	3	3009	A	3
2003	C	2	2141	E	7	2412	F	6	2709	B	3	3010	A	3
2004	A	3	2142	E	6	2413	F	5	2710	B	4	3050	E	5
2005	A	3	2143	D	6	2414	F	5	2711	A	5	3051	D	5
2007	C	3	2144	D	7	2415	C	3	2712	A	3	3052	E	5
2010	A	5	2145	D	6	2416	F	5	2713	A	3	3053	E	5
2012	A	1	2146	E	7	2417	C	3	2714	B	2	3054	D	4
2013	A	1	2200	C	7	2418	G	5	2715	A	6	3055	C	4
2050	A	4	2201	D	7	2450	E	8	2716	A	3	3056	E	5
2051	D	5	2202	D	7	2451	F	8	2717	B	2	3057	D	5
2052	D	5	2203	D	8	2452	F	8	2718	B	3	3058	C	4
2053	E	5	2204	E	7	2453	F	8	2719	B	6	3059	D	5
2054	E	5	2205	D	8	2455	C	8	2720	B	6	3060	E	5
2055	D	5	2206	D	7	2456	C	8	2721	B	2	3061	D	5
2056	C	4	2207	D	8	2457	B	8	2722	A	5	3062	D	5
2057	D	5	2208	C	1	2458	C	8	2723	A	6	3063	D	5
2058	D	5	2209	D	8	2461	B	7	2724	B	4	3064	E	5
2059	D	5	2210	D	8	2462	F	8	2725	B	6	3065	E	5
2060	D	5	2211	D	8	2463	E	8	2726	B	3	3066	D	5
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2062	E	5	2213	C	8	2465	E	8	2728	B	1	3068	D	5
2063	D	5	2214	C	1	2466	C	2	2729	B	2	3069	D	5
2064	C	4	2215	C	2	2467	C	2	2730	B	2	3070	D	5
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2066	C	4	2217	D	7	2469	F	5	2732	B	3	3072	E	5
2067	D	5	2250	D	4	2470	D	1	2733	B	2	3073	E	5
2068	C	5	2251	D	4	2471	C	2	2734	B	2	3074	D	5
2069	E	5	2252	E	1	2472	C	2	2735	B	2	3075	D	5
2070	E	5	2253	B	6	2473	C	2	2736	B	2	3076	C	5
2071	E	5	2254	C	3	2474	G	1	2737	B	2	3077	B	4
2072	D	5	2255	C	3	2475	C	1	2762	E	1	3100	C	6
2073	C	5	2256	C	3	2476	E	8	2763	E	1	3101	C	6
2074	C	4	2257	C	5	2477	F	8	2764	E	1	3102	C	6
2075	C	4	2258	D	3	2478	F	8	2765	D	1	3103	C	6
2076	C	4	2259	A	5	2479	E	8	2766	E	1	3104	E	7
2077	D	6	2260	B	4	2500	D	1	2767	G	1	3105	C	6
2078	C	4	2261	B	4	2501	G	2	2769	F	1	3106	D	6
2100	E	7	2262	B	4	2502	G	2	2770	F	1	3107	D	7
2101	D	7	2263	A	5	2503	D	1	2771	F	1	3108	D	6
2102	D	7	2300	F	2	2504	G	2	2773	F	1	3109	D	6
2103	D	7	2301	F	2	2505	G	2	2774	F	1	3110	D	6
2104	F	6	2302	F	2	2506	G	2	2775	F	1	3111	D	6
2105	D	6	2303	F	2	2507	F	1	2776	G	1	3112	E	6
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2110	E	6	2308	F	5	2512	G	2	2781	G	1	3117	C	6
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2112	E	7	2310	E	4	2514	G	2	2802	B	1	3119	C	6
2113	E	7	2311	F	5	2515	F	8	2803	B	2	3120	C	6
2114	E	6	2312	C	4	2516	E	1	2804	C	1	3121	C	6
2115	C	5	2320	C	1	2550	C	3	2805	B	1	3122	C	6
2116	D	6	2321	D	2	2551	A	7	2806	B	1	3123	C	6
2117	D	7	2322	F	6	2552	A	7	2807	B	1	3124	C	6
2118	D	6	2323	E	6	2553	C	1	2808	B	1	3125	C	6
2119	D	6	2324	C	5	2554	D	1	2809	B	1	3126	E	7
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2122	E	7	2326	C	3	2556	A	7	2811	B	1	3128	E	6
2123	E	7	2327	C	3	2557	D	8	2812	B	1	3129	C	5

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3130	D	6	3322	F	7	3504	G	8	3710	A	5	5700	B	2	7707	B	2		
3131	D	7	3323	F	7	3505	G	8	3712	B	4	6050	E	5	7708	B	3		
3132	D	6	3324	E	7	3506	G	8	3713	B	4	6051	E	5	7760	E	1		
3133	C	5	3325	F	7	3507	G	8	3714	B	4	6100	E	6	7761	F	1		
3134	D	7	3326	F	6	3508	G	1	3715	B	4	6400	F	7	7762	D	1		
3135	E	7	3327	C	2	3509	G	2	3716	B	5	6451	F	7	7763	C	1		
3136	D	6	3328	C	2	3510	G	2	3717	C	3	6453	E	8	7764	F	1		
3137	D	7	3329	C	5	3511	G	7	3718	A	3	6454	F	8	7800	B	1		
3138	D	7	3330	C	5	3512	G	7	3719	B	3	6455	F	8	C750	E	6		
3139	C	6	3331	C	2	3513	G	7	3720	B	4	6456	B	7	S500	G	3		
3140	D	6	3332	C	2	3514	G	5	3722	B	3	6457	B	7	S501	G	4		
3141	D	6	3333	C	2	3515	G	4	3724	B	3	6458	F	7	S502	G	4		
3142	E	6	3334	A	6	3516	D	1	3725	B	4	6459	E	8	S503	G	4		
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3145	E	7	3402	G	7	3519	G	8	3728	B	3	6502	G	2	S506	G	4		
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3147	E	7	3404	G	6	3521	G	7	3730	A	2	6504	G	3	S508	G	4		
3148	D	7	3405	G	6	3522	G	7	3735	A	6	6505	F	1	S509	G	7		
3149	D	7	3406	F	6	3523	G	7	3736	A	2	6506	G	5	S510	G	7		
3200	C	7	3407	B	7	3525	G	4	3739	B	4	6507	G	2	S511	G	8		
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3203	D	7	3410	F	7	3528	G	3	3761	C	1	6510	F	2	S514	G	7		
3204	D	7	3411	F	6	3529	G	4	3762	D	1	6511	G	2	S515	G	7		
3205	D	7	3412	G	6	3530	G	3	3763	F	1	6550	A	8	S516	G	7		
3206	D	7	3413	G	6	3531	G	3	3764	D	6	6800	C	1					
3207	D	7	3414	F	6	3532	G	4	3765	D	6	7000	A	3					
3208	C	8	3415	F	6	3533	G	8	3766	E	1	7001	A	3					
3209	C	8	3416	F	6	3534	G	8	3767	F	1	7050	C	5					
3210	D	8	3417	F	5	3535	F	7	3768	G	1	7051	D	5					
3211	D	8	3418	F	5	3550	E	8	3769	D	1	7052	D	5					
3212	D	8	3419	G	7	3551	A	7	3770	D	1	7100	E	6					
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3214	C	8	3451	B	7	3553	A	8	3773	F	1	7102	C	6					
3215	D	8	3452	C	7	3554	A	8	3774	F	1	7103	D	7					
3216	C	8	3453	C	1	3555	A	8	3775	D	1	7104	D	7					
3217	D	8	3454	E	8	3556	A	8	3776	E	1	7200	D	8					
3218	C	2	3455	B	8	3557	A	8	3777	E	1	7201	D	8					
3219	C	8	3456	C	8	3558	A	7	3778	F	1	7250	B	6					
3220	C	8	3457	F	8	3559	C	3	3779	F	1	7251	B	5					
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3251	C	3	3459	E	7	3561	A	7	3781	F	1	7253	B	4					
3252	A	5	3460	F	8	3562	A	8	3782	C	1	7254	B	4					
3253	B	4	3461	E	8	3563	A	7	3783	F	1	7300	E	2					
3254	F	7	3462	E	7	3564	A	7	3784	F	1	7301	E	4					
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3262	B	6	3470	E	7	3572	A	2	3792	E	1	7451	C	7					
3263	B	5	3471	B	7	3573	A	2	3793	D	6	7452	B	7					
3264	A	5	3472	B	7	3574	A	2	3794	D	6	7453	E	8					
3265	B	4	3473	B	7	3577	A	7	3795	C	1	7454	E	8					
3266	F	7	3474	C	7	3578	A	7	3796	D	1	7455	B	8					
3267	B	5	3475	C	7	3581	A	7	3800	B	2	7456	C	7					
3268	A	4	3476	C	7	3582	A	7	3801	B	1	7457	F	8					
3269	B	4	3477	C	7	3583	A	7	3802	B	1	7458	E	8					
3300	F	2	3478	C	7	3584	A	6	3803	B	1	7459	E	7					
3301	E	4	3479	C	7	3585	A	6	3804	B	1	7500	F	7					
3302	F	5	3480	E	8	3586	A	7	3805	B	1	7501	G	7					
3303	F	5	3481	E	8	3587	A	7	3806	B	2	7502	G	7					
3304	F	2	3482	E	8	3588	A	8	3807	B	1	7550	A	8					
3305	F	3	3483	E	8	3589	A	8	3809	B	1	7551	A	8					
3306	F	3	3484	E	8	3701	B	3	4450	E	8	7552	A	7					
3307	F	3	3485	E	8	3702	B	5	4700	B	5	7553	A	7					
3308	F	3	3486	E	7	3703	B	5	5000	A	3	7554	A	7					
3309	F	2	3487	E	8	3704	B	6	5001	A	3	7555	A	7					
3310	F	5	3488	C	7	3705	C	3	5250	A	5	7700	B	5					
3311	F	5	3500	G	2	3706	B	2	5300	F	5	7701	B	5					
3312	F	5	3501	G	2	3707	B	5	5400	B	6	7703	B	4					
3320	D	2	3502	G	2	3708	B	5	5401	B	6	7704	B	4					
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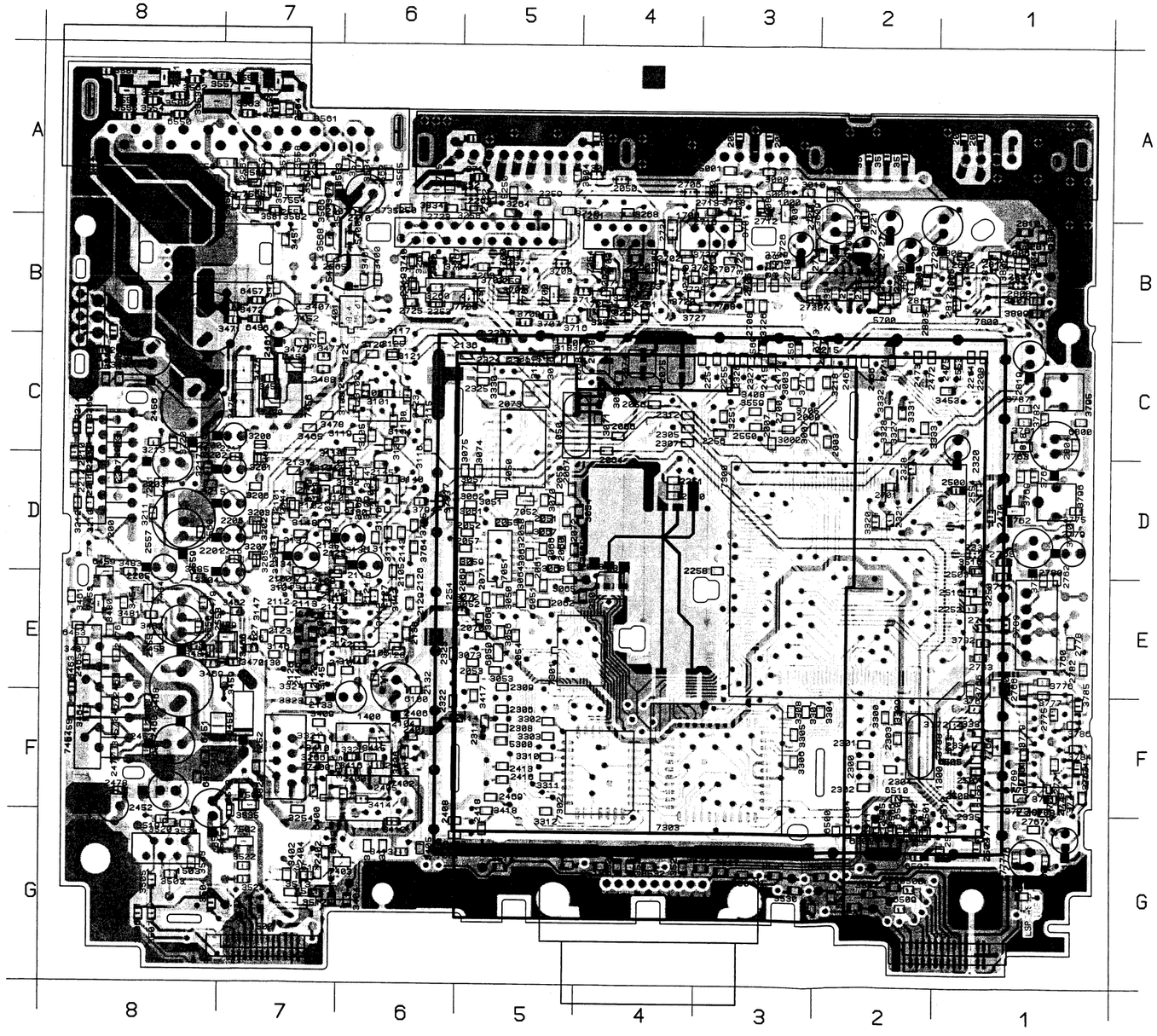
View B



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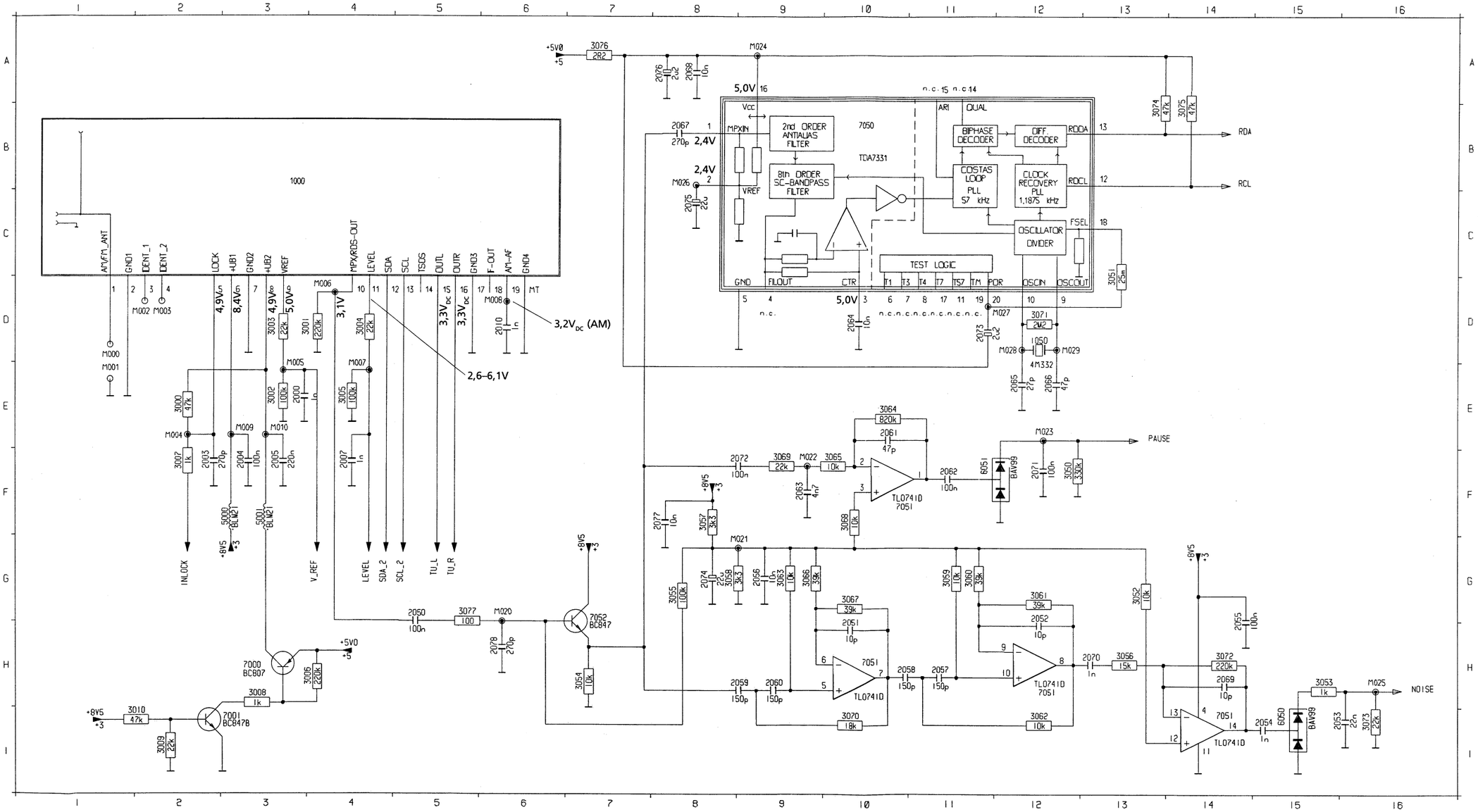
CIRCUIT DIAGRAMS – MAIN PWB

Tuner, RDS, Noise

1000	B 3	2050	G 5	2058	H 10	2066	E 12	2074	G 8	3003	D 3	3050	F 12	3058	G 8	3066	G 9	3074	B 13	7000	H 3	M000	D 1	M008	D 6	M025	H 16
1050	D 12	2051	H 10	2059	H 9	2067	B 8	2075	C 8	3004	D 4	3051	C 13	3059	G 11	3067	G 10	3075	B 14	7001	I 3	M001	E 1	M009	E 3	M026	B 8
2000	E 3	2052	G 12	2060	H 9	2068	A 8	2076	A 8	3005	E 4	3052	G 13	3060	G 11	3068	F 10	3076	A 7	7050	B 10	M002	D 1	M010	E 3	M027	D 11
2003	F 2	2053	I 16	2061	E 10	2069	H 14	2077	F 8	3006	H 4	3053	H 15	3061	G 12	3069	F 9	3077	G 5	7051	I 14	M003	D 2	M020	G 6	M028	D 12
2004	F 3	2054	I 15	2062	F 11	2070	H 13	2078	H 6	3007	F 2	3054	H 7	3062	I 12	3070	I 10	5000	F 3	7051	H 12	M004	E 2	M021	G 8	M029	D 12
2005	F 3	2055	G 14	2063	F 9	2071	F 12	3000	E 2	3008	H 3	3055	G 8	3063	G 9	3071	D 12	5001	F 3	7051	H 10	M005	E 3	M022	F 9		
2007	F 4	2056	G 9	2064	D 10	2072	F 9	3001	D 4	3009	I 2	3056	H 13	3064	E 10	3072	H 14	6050	H 15	7051	F 10	M006	D 4	M023	E 12		
2010	D 6	2057	H 11	2065	E 12	2073	D 11	3002	E 3	3010	I 2	3057	F 8	3065	F 10	3073	I 16	6051	F 11	7052	G 7	M007	E 4	M024	A 9		



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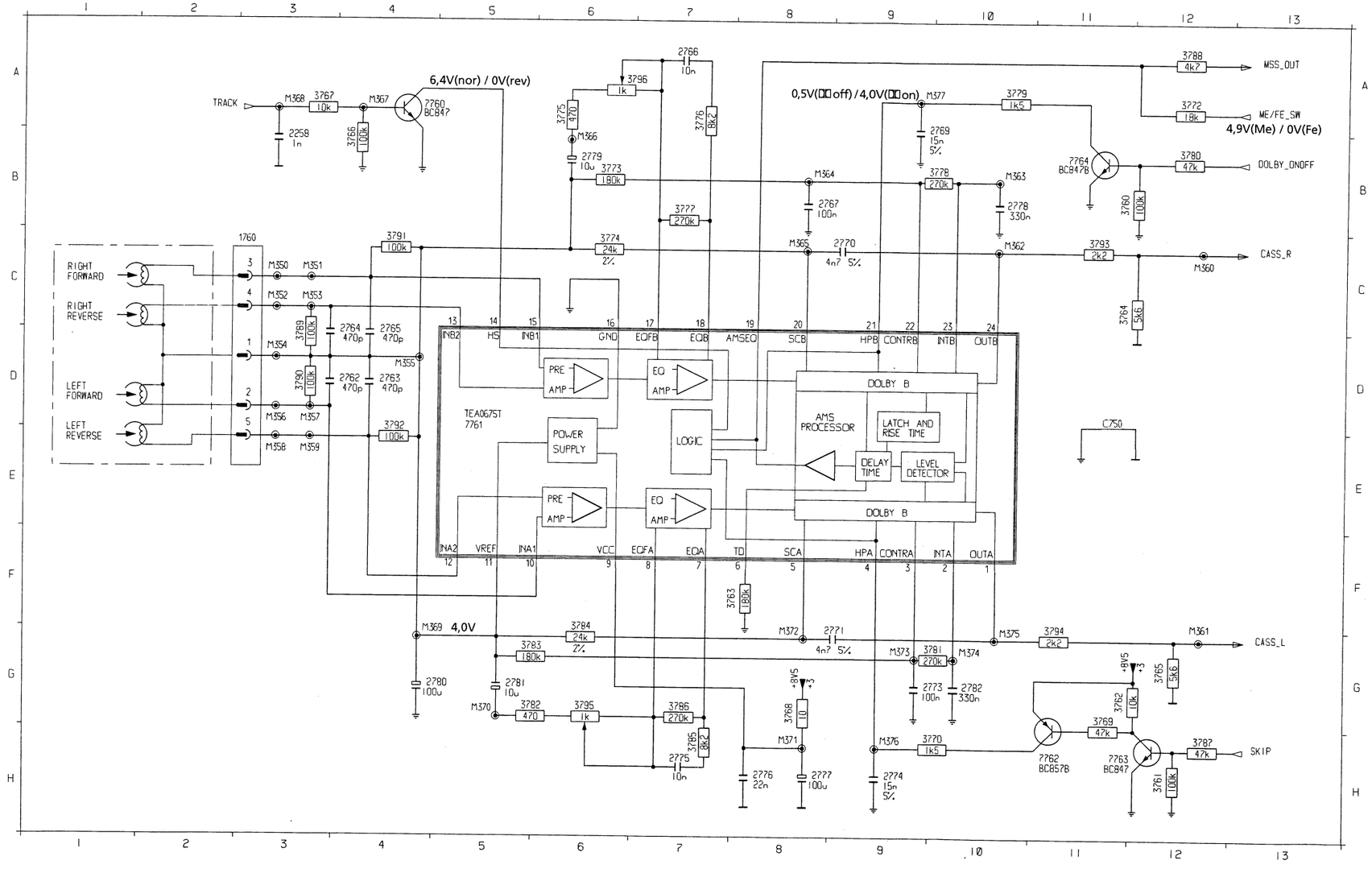
Preamp Tape Deck, Dolby

1760	C 2	2769	A 10	2778	B 10	3763	F 8	3772	A 12	3780	B 12	3788	A 12	3796	A 7	M351	C 3	M359	E 3	M367	A 4	M375	G 10
2258	B 3	2770	C 9	2779	B 6	3764	C 11	3773	B 6	3781	G 10	3789	D 3	7760	A 4	M352	C 3	M360	C 12	M368	A 3	M376	H 9
2762	D 4	2771	G 9	2780	G 5	3765	G 12	3774	C 6	3782	G 6	3790	D 3	7761	E 5	M353	C 3	M361	F 12	M369	G 4	M377	A 9
2763	D 4	2773	G 10	2781	G 5	3766	B 4	3775	A 6	3783	G 6	3791	C 4	7762	H 11	M354	D 3	M362	C 10	M370	G 5		
2764	D 4	2774	H 9	2782	G 10	3767	A 3	3776	A 7	3784	G 6	3792	E 4	7763	H 12	M355	D 4	M363	B 10	M371	H 8		
2765	D 4	2775	H 7	3760	B 11	3768	G 8	3777	B 7	3785	H 7	3793	C 11	7764	B 11	M356	D 3	M364	B 8	M372	G 8		
2766	A 7	2776	H 8	3761	H 12	3769	G 11	3778	B 10	3786	G 7	3794	G 11	C750	D 11	M357	D 3	M365	C 8	M373	G 9		
2767	B 8	2777	H 8	3762	G 11	3770	H 10	3779	A 10	3787	H 12	3795	G 6	M350	C 3	M358	E 3	M366	B 6	M374	G 10		



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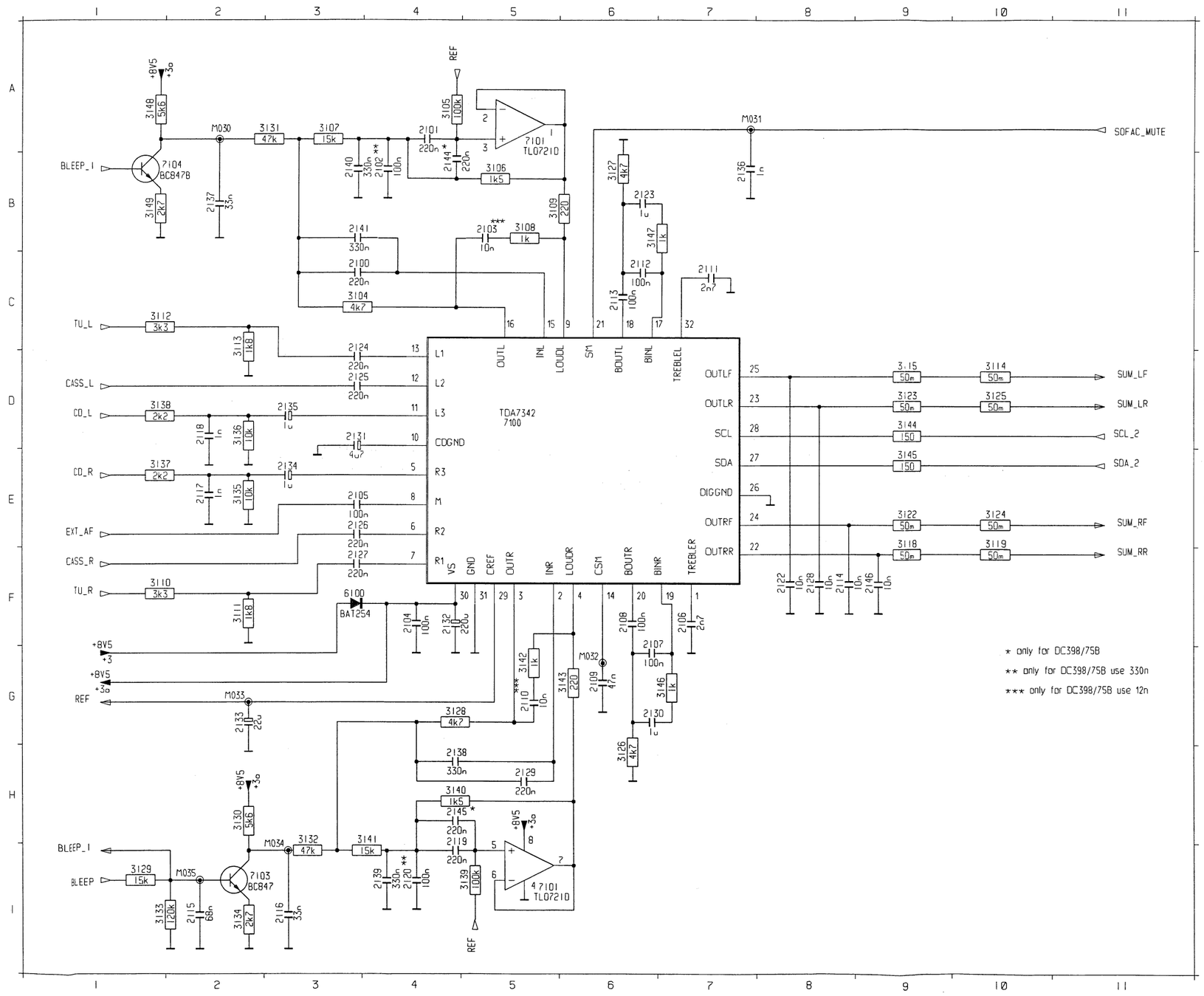
SOFAC

2100	C	3	2108	F	6	2116	I	3	2125	D	3	2133	G	2	2141	B	3	3108	B	5	3118	E	9	3128	G	4	3136	D	2	3144	D	9	7101	I	5	M034	I	3
2101	A	4	2109	G	6	2117	E	2	2126	E	3	2134	E	3	2144	B	4	3109	B	5	3119	E	10	3129	I	1	3137	E	1	3145	E	9	7101	A	5	M035	I	2
2102	B	4	2110	G	5	2118	D	2	2127	F	3	2135	D	3	2145	H	4	3110	F	1	3122	E	9	3130	H	2	3138	D	1	3146	G	7	7103	I	2			
2103	B	5	2111	C	7	2119	I	4	2128	F	8	2136	B	7	2146	F	9	3111	F	2	3123	D	9	3131	A	3	3139	I	5	3147	B	6	7104	B	1			
2104	F	4	2112	C	6	2120	I	4	2129	H	5	2137	B	2	3104	C	3	3112	C	1	3124	E	10	3132	H	3	3140	H	4	3148	A	1	M030	A	2			
2105	E	3	2113	C	6	2122	F	8	2130	G	6	2138	H	4	3105	A	4	3113	C	2	3125	D	10	3133	I	1	3141	H	4	3149	B	1	M031	A	7			
2106	F	7	2114	F	8	2123	B	6	2131	D	3	2139	I	4	3106	B	5	3114	D	10	3126	H	6	3134	I	2	3142	G	5	6100	F	3	M032	G	6			
2107	G	6	2115	I	2	2124	D	3	2132	F	4	2140	B	3	3107	A	3	3115	D	9	3127	B	6	3135	E	2	3143	G	6	7100	D	5	M033	G	2			



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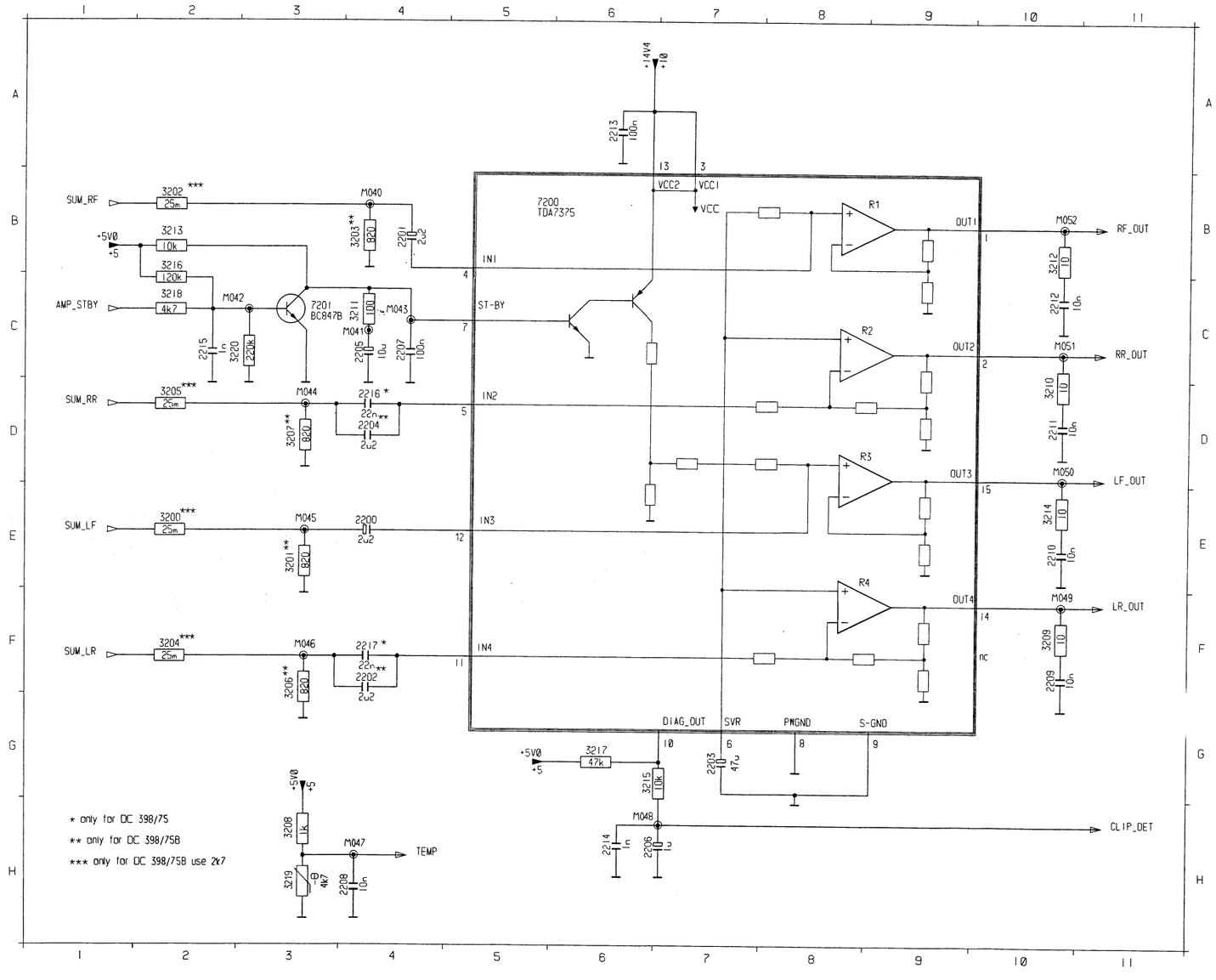
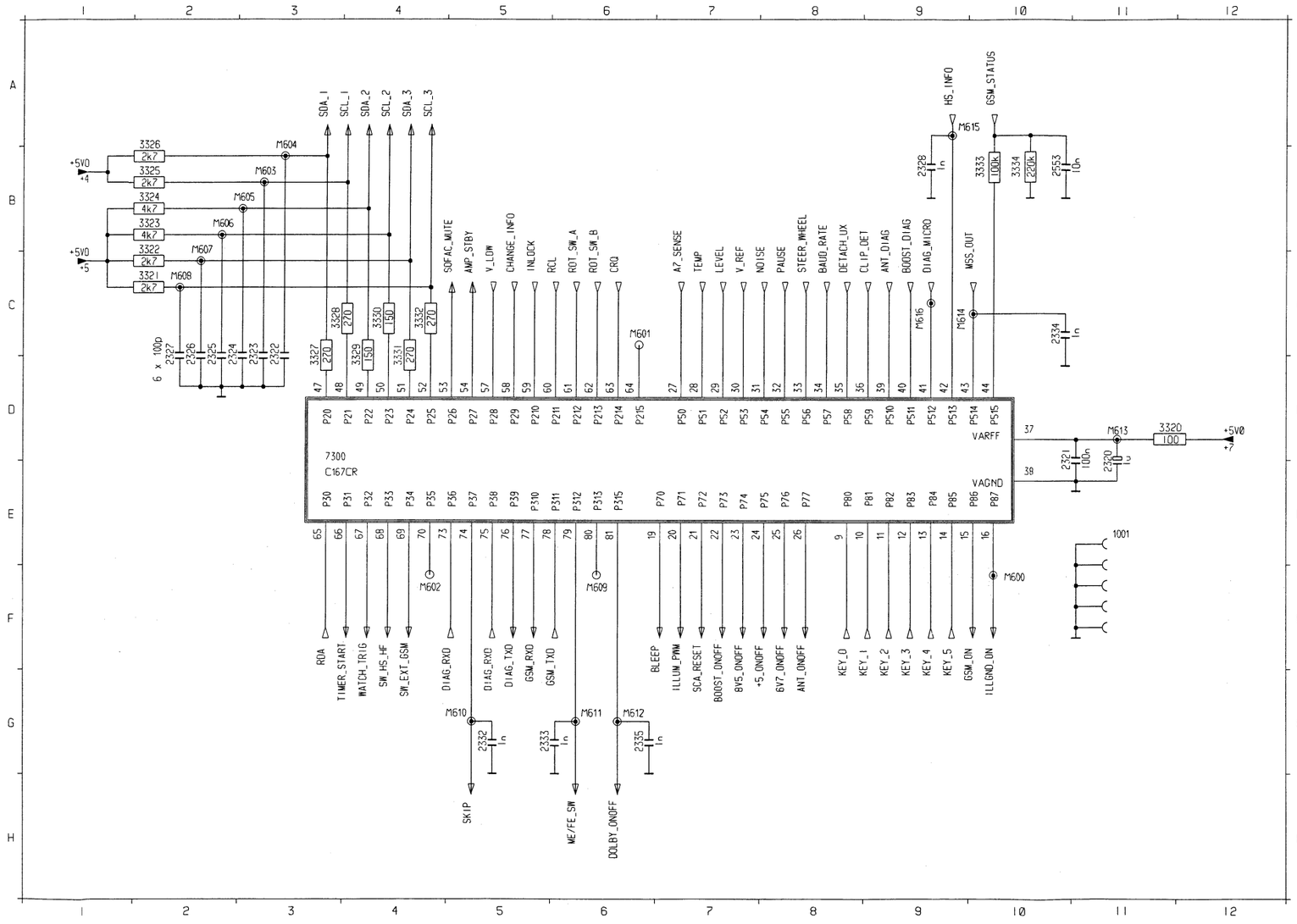
Power Amplifier

2200	E 4	2205	C 4	2210	E 10	2215	C 2	3202	B 2	3207	D 3	3212	B 10	3217	G 6	7201	C 3	M044	D 3	M049	F 10
2201	B 4	2206	H 6	2211	D 10	2216	D 4	3203	B 4	3208	H 3	3213	B 2	3218	C 2	M040	B 4	M045	E 3	M050	D 10
2202	F 4	2207	C 4	2212	C 10	2217	F 4	3204	F 2	3209	F 10	3214	E 10	3219	H 3	M041	C 3	M046	F 3	M051	C 10
2203	G 7	2208	H 4	2213	A 6	3200	E 2	3205	D 2	3210	D 10	3215	G 6	3220	C 2	M042	C 2	M047	H 4	M052	B 10
2204	D 4	2209	F 10	2214	H 6	3201	E 3	3206	F 3	3211	C 4	3216	B 2	7200	B 5	M043	C 4	M048	H 6		



µ-Processor I

1001	E 11	2324	C 2	2332	G 5	3320	D 11	3325	B 2	3330	C 4	7300	D 3	M604	B 3	M609	F 6	M614	C 9
2320	D 11	2325	C 2	2333	G 5	3321	C 2	3326	B 2	3331	C 4	M600	F 10	M605	B 2	M610	G 4	M615	A 9
2321	D 10	2326	C 2	2334	C 10	3322	C 2	3327	C 3	3332	C 4	M601	C 6	M606	B 2	M611	G 6	M616	C 9
2322	C 3	2327	C 2	2335	G 6	3323	B 2	3328	C 3	3333	B 10	M602	F 4	M607	C 2	M612	G 6		
2323	C 3	2328	B 9	2553	B 10	3324	B 2	3329	C 4	3334	B 10	M603	B 3	M608	C 2	M613	D 11		



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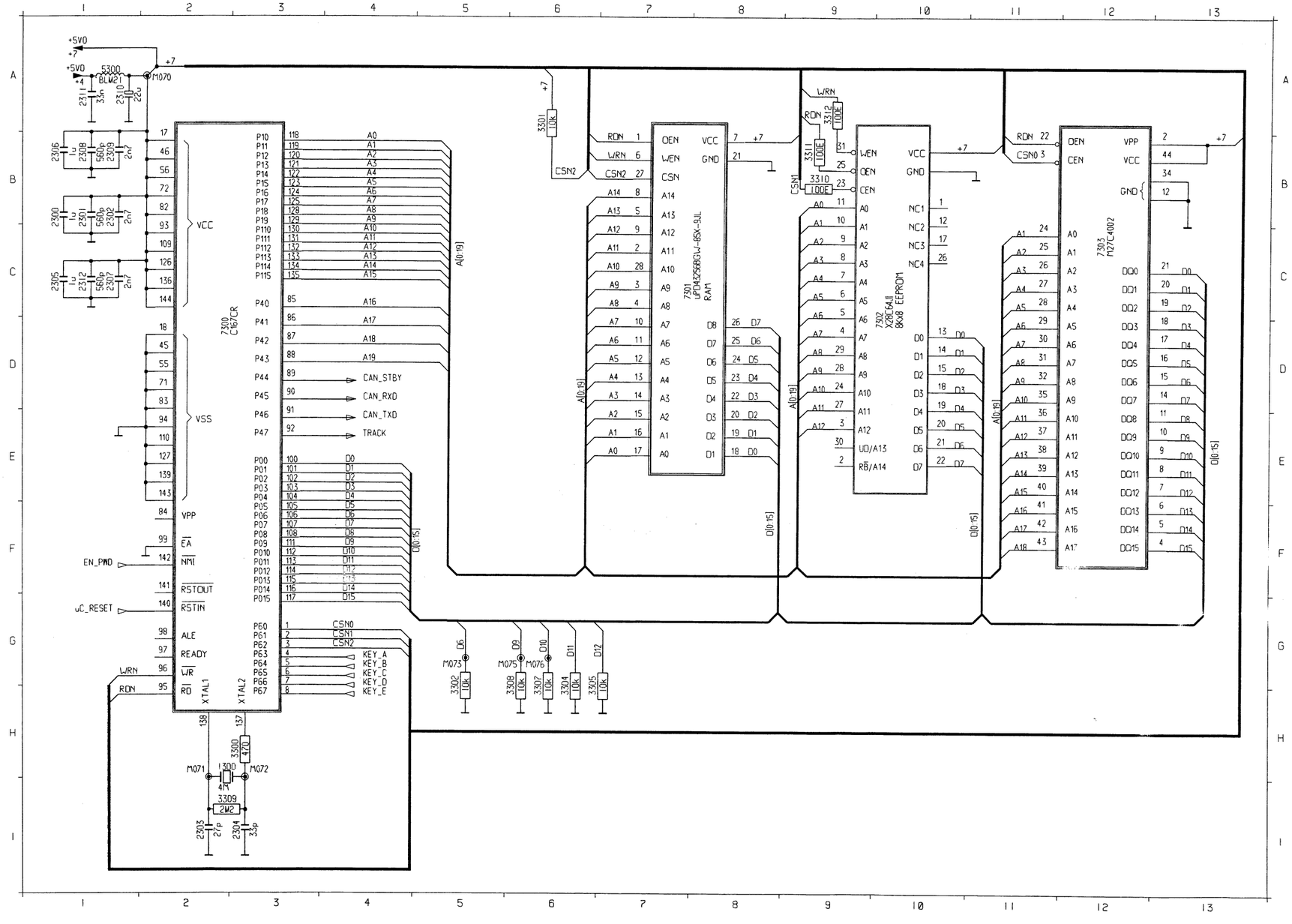
µ-Processor II

1300	H 2	2302	B 1	2305	C 1	2308	B 1	2311	A 1	3301	A 6	3305	G 6	3309	I 2	3312	A 9	7301	C 7	M070	A 2	M073	G 5
2300	B 1	2303	I 2	2306	B 1	2309	B 1	2312	C 1	3302	G 5	3307	G 6	3310	B 9	5300	A 1	7302	D 10	M071	H 2	M075	G 5
2301	B 1	2304	I 3	2307	C 1	2310	A 1	3300	H 3	3304	G 6	3308	G 6	3311	B 9	7300	D 2	7303	C 12	M072	H 3	M076	G 6



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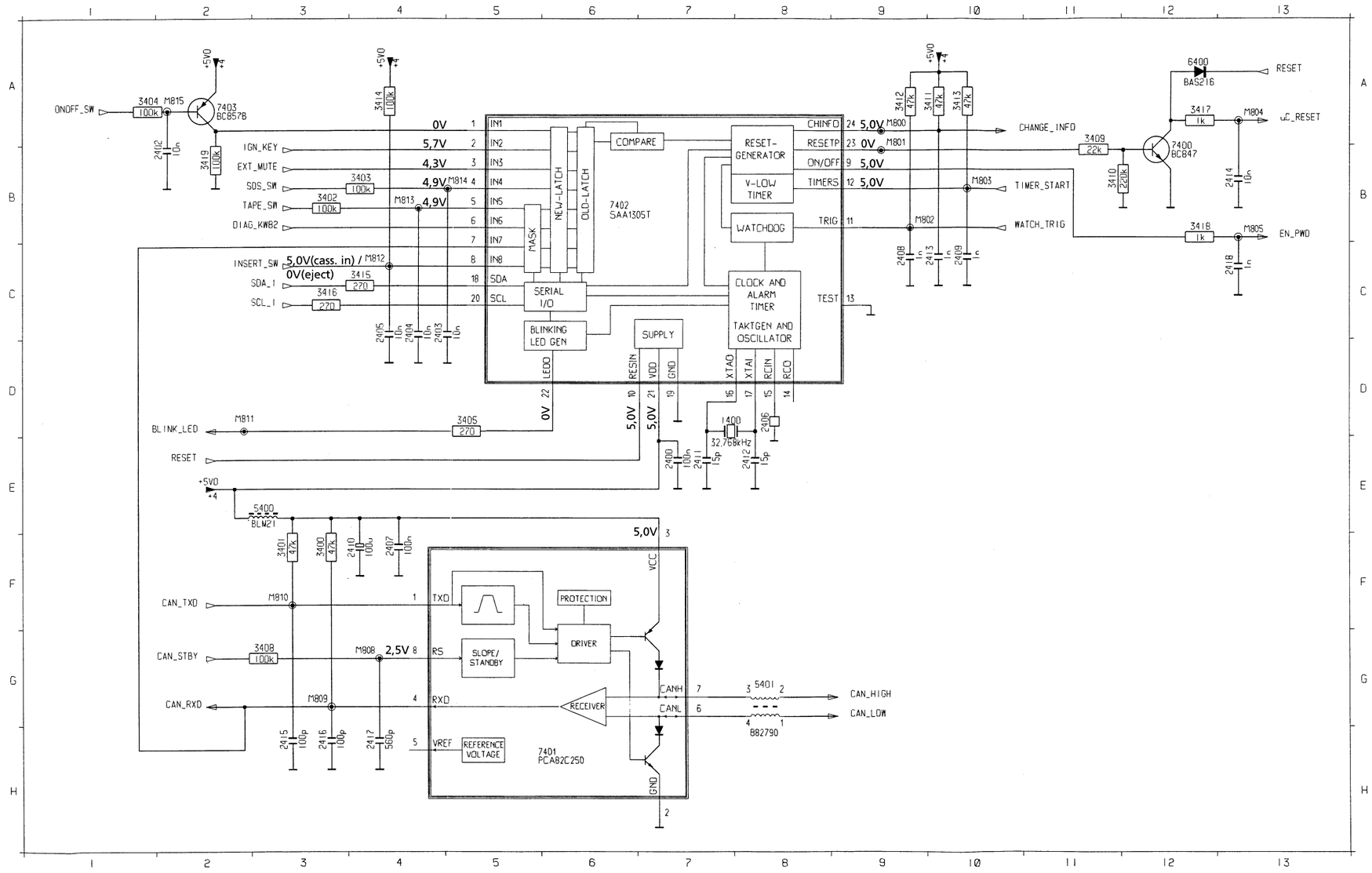
On/Off-Logic, CAN-Bus Interface

1400	D 7	2405	C 4	2410	F 4	2415	H 3	3401	F 3	3408	G 3	3413	A 10	3418	B 12	7400	B 12	M801	A 9	M808	G 4	M813	B 4
2400	E 7	2406	D 8	2411	E 7	2416	H 3	3402	B 3	3409	A 11	3414	A 4	3419	B 2	7401	H 5	M802	B 9	M809	G 3	M814	B 4
2402	B 2	2407	F 4	2412	E 8	2417	H 4	3403	B 4	3410	B 11	3415	C 4	5400	E 3	7402	B 6	M803	B 10	M810	F 3	M815	A 2
2403	C 4	2408	C 9	2413	C 10	2418	C 13	3404	A 1	3411	A 10	3416	C 3	5401	G 8	7403	A 2	M804	A 13	M811	D 2		
2404	C 4	2409	C 10	2414	B 13	3400	F 3	3405	D 5	3412	A 9	3417	A 12	6400	A 12	M800	A 9	M805	B 13	M812	C 4		



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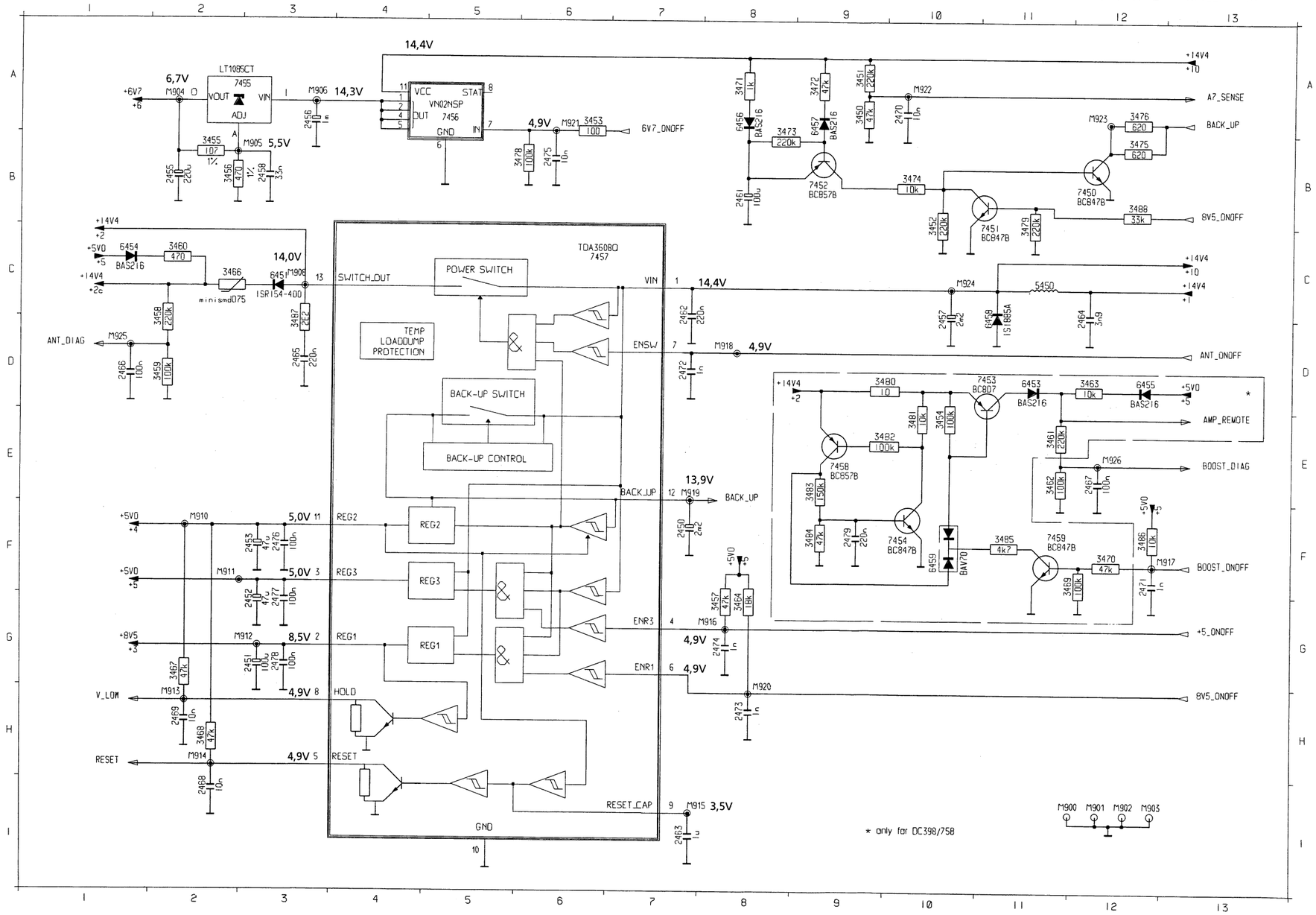
Power Supply

2450	F 7	2461	B 8	2469	H 2	2477	G 3	3455	B 2	3463	D 12	3472	A 9	3481	E 10	5450	C 11	6459	F 10	7457	C 6	M905	B 2	M915	I 8	M923	A 12
2451	G 3	2462	C 7	2470	A 10	2478	G 3	3456	B 2	3464	G 8	3473	A 8	3482	E 10	6451	C 3	7450	B 12	7458	E 9	M906	A 3	M916	G 7	M924	C 10
2452	G 3	2463	I 7	2471	F 12	2479	F 9	3457	G 8	3466	C 2	3474	B 10	3483	E 9	6453	D 11	7451	C 11	7459	F 11	M908	C 3	M917	F 12	M925	D 1
2453	F 3	2464	C 12	2472	D 7	3450	A 9	3458	D 2	3467	G 2	3475	B 12	3484	F 9	6454	C 1	7452	B 9	M900	I 11	M910	F 2	M918	D 8	M926	E 12
2455	B 2	2465	D 3	2473	H 8	3451	A 9	3459	D 2	3468	H 2	3476	A 12	3485	F 11	6455	D 12	7453	D 10	M901	I 12	M911	F 2	M919	E 7		
2456	A 3	2466	D 1	2474	G 8	3452	B 10	3460	C 2	3469	F 12	3478	B 6	3486	F 12	6456	A 8	7454	F 10	M902	I 12	M912	G 2	M920	H 8		
2457	C 10	2467	E 12	2475	B 6	3453	A 6	3461	E 11	3470	F 12	3479	B 11	3487	D 3	6457	A 9	7455	A 3	M903	I 12	M913	H 2	M921	A 6		
2458	B 3	2468	I 2	2476	F 3	3454	E 10	3462	E 11	3471	A 8	3480	D 10	3488	B 12	6458	C 11	7456	A 5	M904	A 2	M914	H 2	M922	A 10		



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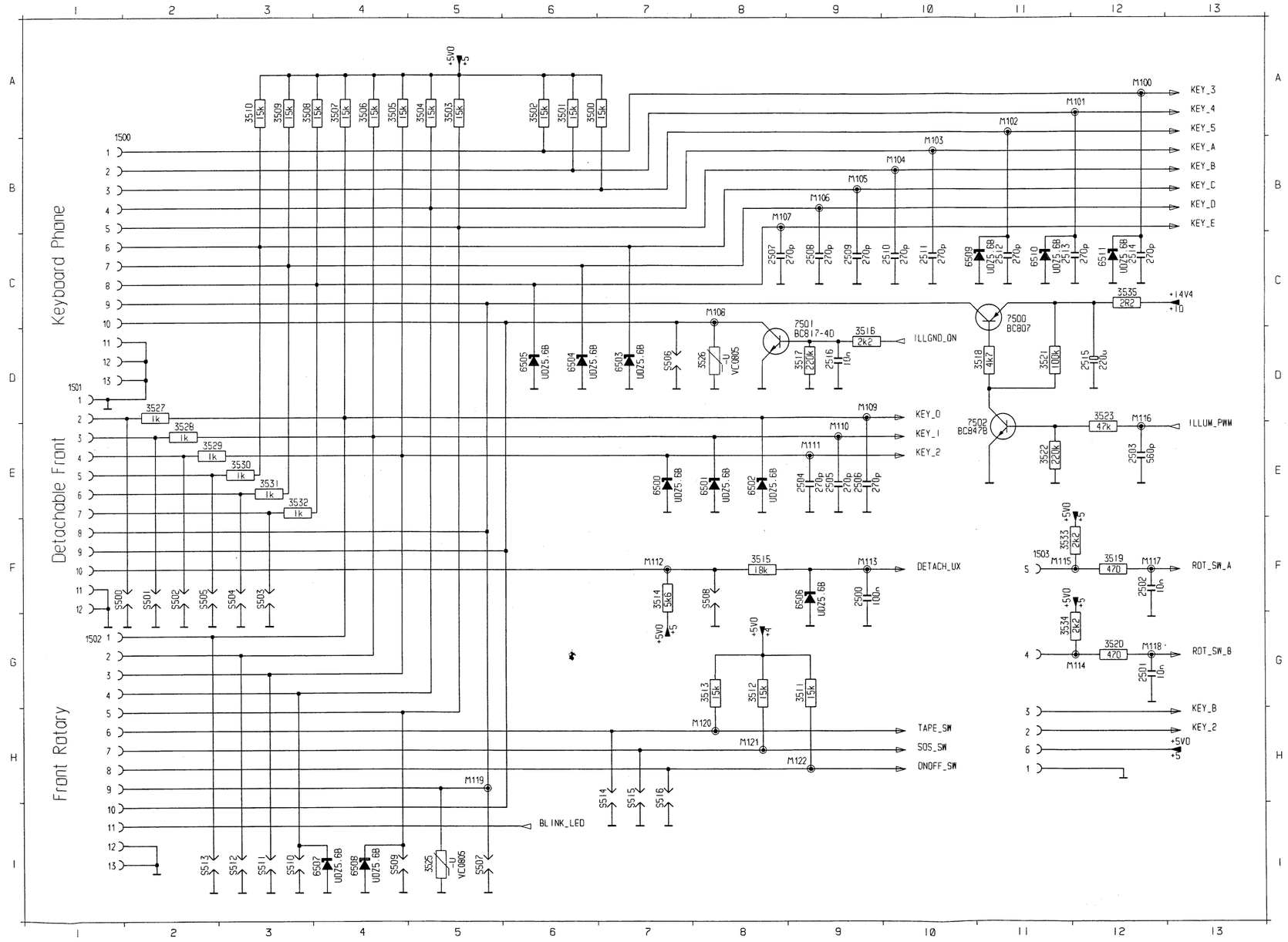
Front Connection

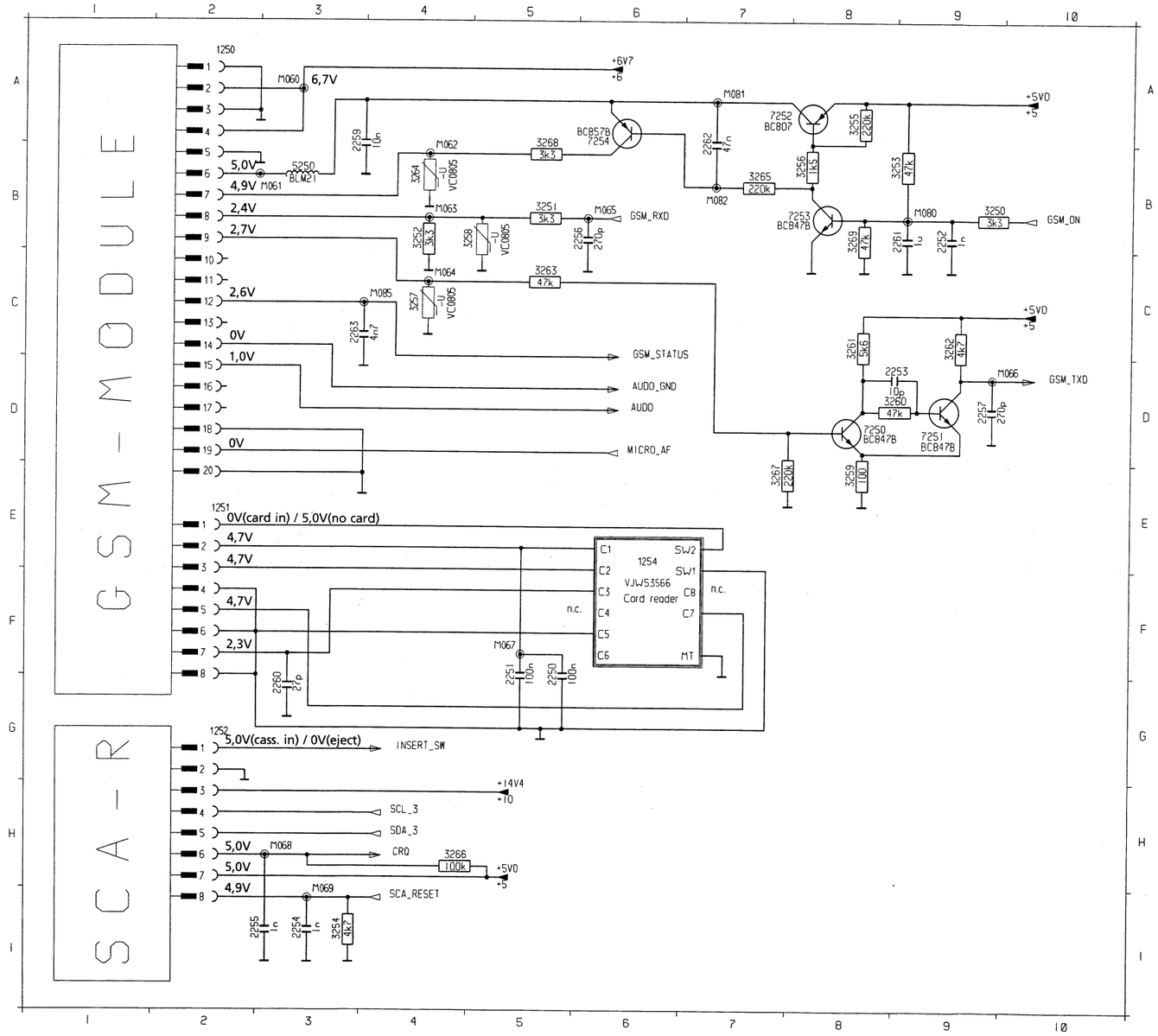
1500	B	1	2505	E	9	2514	C	12	3506	A	4	3515	F	8	3525	I	5	3534	G	11	6507	I	4	M101	A	11	M110	E	9	M119	H	5	S505	F	2	S514	H	7
1501	D	1	2506	E	9	2515	D	12	3507	A	4	3516	D	9	3526	D	8	3535	C	12	6508	I	4	M102	A	11	M111	E	9	M120	H	7	S506	D	7	S515	H	7
1502	G	1	2507	C	8	2516	D	9	3508	A	3	3517	D	9	3527	D	2	6500	E	7	6509	C	10	M103	B	10	M112	F	7	M121	H	8	S507	I	5	S516	H	7
1503	F	11	2508	C	9	3500	A	6	3509	A	3	3518	D	11	3528	E	2	6501	E	8	6510	C	11	M104	B	10	M113	F	9	M122	H	8	S508	F	8			
2500	F	9	2509	C	9	3501	A	6	3510	A	3	3519	F	12	3529	E	2	6502	E	8	6511	C	12	M105	B	9	M114	G	11	S500	F	1	S509	I	4			
2501	G	12	2510	C	10	3502	A	6	3511	G	9	3520	G	12	3530	E	3	6503	D	7	7500	C	11	M106	B	9	M115	F	11	S501	F	2	S510	I	3			
2502	F	12	2511	C	10	3503	A	5	3512	G	8	3521	D	11	3531	E	3	6504	D	6	7501	C	9	M107	B	8	M116	D	12	S502	F	2	S511	I	3			
2503	E	12	2512	C	11	3504	A	5	3513	G	8	3522	E	11	3532	E	3	6505	D	6	7502	E	11	M108	C	8	M117	F	12	S503	F	3	S512	I	3			
2504	E	9	2513	C	11	3505	A	4	3514	F	7	3523	D	12	3533	F	11	6506	F	9	M100	A	12	M109	D	9	M118	G	12	S504	F	3	S513	I	2			



Note:
The first production sets contain 10k resistors at pos. 3533, 3534. These units may have problems with the increment assy (jumps during menu operation).
Replace 10k by 2k2.

GSM Module, SCA-R Deck

1250	A	2	2252	B	9	2259	A	3	3251	B	5	3257	C	4	3263	C	5	3269	B	8	7254	A	6	M065	B	6	M081	A	7
1251	E	2	2253	D	9	2260	G	3	3252	B	4	3258	B	4	3264	B	4	5250	B	3	M060	A	3	M066	D	9	M082	B	7
1252	G	2	2254	I	3	2261	B	9	3253	B	9	3259	E	8	3265	B	7	7250	D	8	M061	B	2	M067	F	5	M085	C	4
1254	E	6	2255	I	3	2262	A	7	3254	I	3	3260	D	9	3266	H	4	7251	D	9	M062	B	4	M068	H	2			
2250	F	5	2256	B	6	2263	C	3	3255	A	8	3261	C	8	3267	E	7	7252	A	7	M063	B	4	M069	I	3			
2251	F	5	2257	D	9	3250	B	9	3256	B	8	3262	C	9	3268	B	5	7253	B	8	M064	C	4	M080	B	9			



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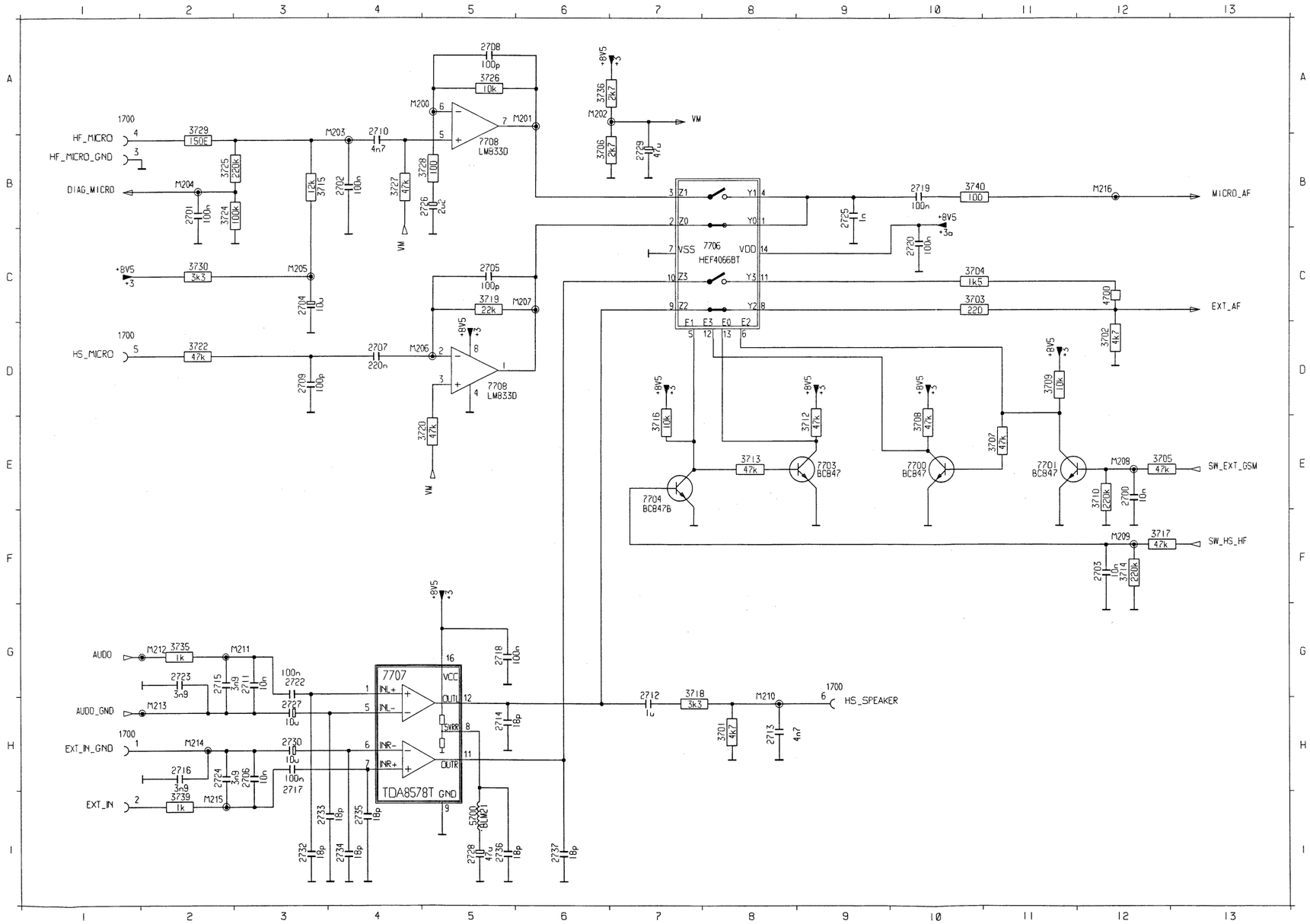
Microphone Interface, Common Mode

1700	G	9	2704	C	3	2712	H	7	2720	C	10	2729	B	7	3701	H	8	3709	D	11	3718	G	7	3728	B	5	5700	I	5	7708	D	5	M207	C	5	M215	I	2
1700	D	1	2705	C	5	2713	H	8	2722	G	3	2730	H	3	3702	D	12	3710	E	12	3719	C	5	3729	A	2	7700	E	10	M200	A	4	M208	E	12	M216	B	12
1700	A	1	2706	H	3	2714	H	5	2723	G	2	2732	I	3	3703	C	10	3712	E	9	3720	E	5	3730	C	2	7701	E	11	M201	A	5	M209	F	12			
1700	H	1	2707	D	4	2715	G	2	2724	H	2	2733	I	3	3704	C	10	3713	E	8	3722	D	2	3735	G	2	7703	E	9	M202	A	6	M210	H	8			
2700	E	12	2708	A	5	2716	H	2	2725	B	9	2734	I	4	3705	E	12	3714	F	12	3724	B	2	3736	A	6	7704	E	7	M203	B	3	M211	G	3			
2701	B	2	2709	D	3	2717	I	3	2726	B	5	2735	I	4	3706	B	6	3715	B	3	3725	B	2	3739	I	2	7706	C	8	M204	B	2	M212	G	2			
2702	B	4	2710	B	4	2718	G	5	2727	H	3	2736	I	5	3707	E	11	3716	E	7	3726	A	5	3740	B	10	7707	G	4	M205	C	3	M213	H	2			
2703	F	12	2711	G	3	2719	B	10	2728	I	5	2737	I	6	3708	E	10	3717	F	12	3727	B	4	4700	C	12	7708	B	5	M206	D	4	M214	H	2			



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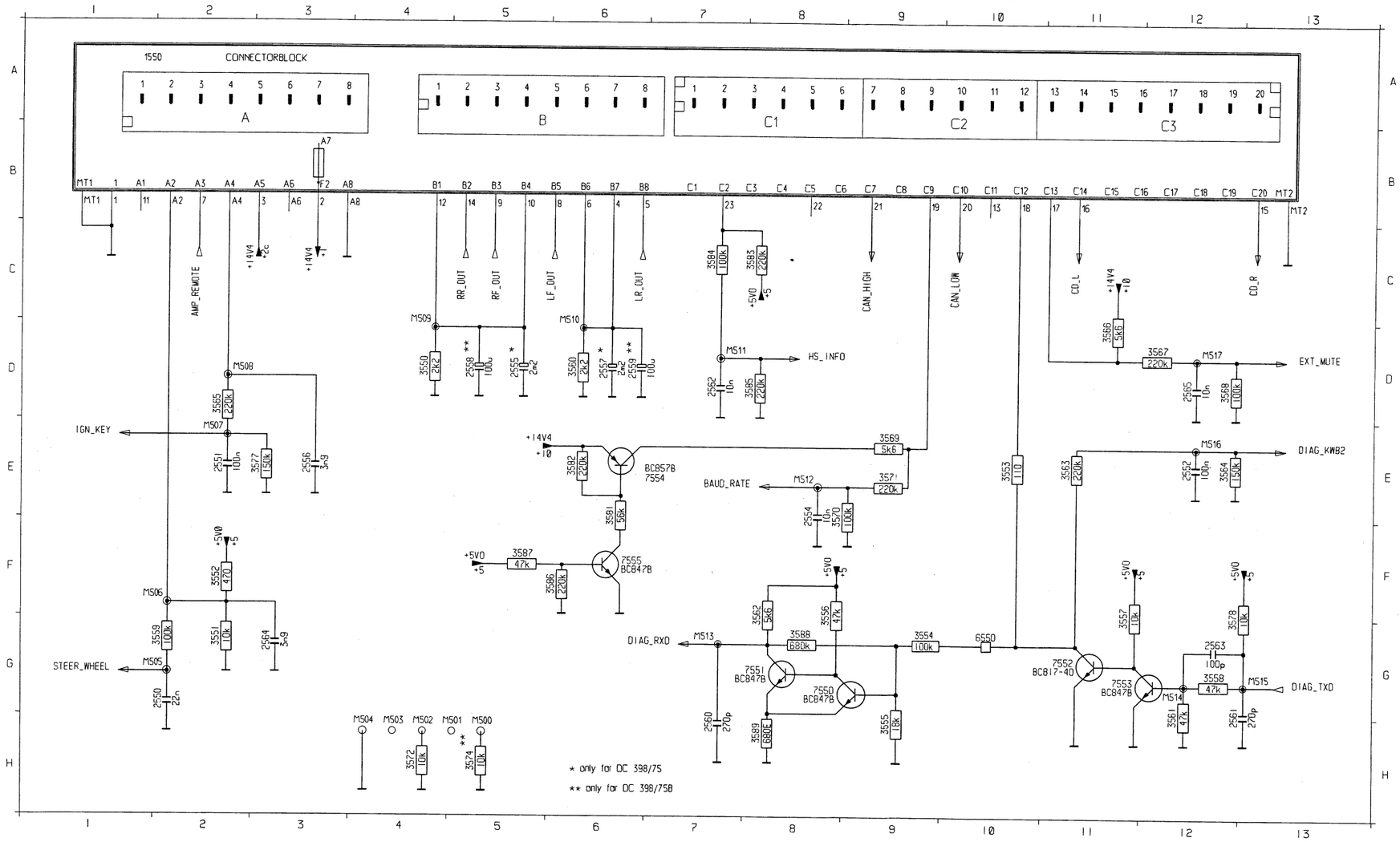
Connector Block

1550	A 1	2557	D 6	2564	G 3	3555	H 9	3562	F 8	3569	E 9	3581	E 6	3588	G 8	7554	E 6	M505	G 1	M512	E 8
2550	G 2	2558	D 5	2565	D 12	3556	F 8	3563	E 11	3570	E 8	3582	E 6	3589	H 8	7555	F 6	M506	F 1	M513	G 7
2551	E 2	2559	D 6	3550	D 4	3557	F 11	3564	E 12	3571	E 9	3583	C 8	6550	G 10	M500	H 5	M507	E 2	M514	G 12
2552	E 12	2560	H 7	3551	G 2	3558	G 12	3565	D 2	3572	H 4	3584	C 7	7550	G 8	M501	H 4	M508	D 2	M515	G 13
2554	E 8	2561	G 12	3552	F 2	3559	G 2	3566	D 11	3574	H 5	3585	D 8	7551	G 8	M502	H 4	M509	D 4	M516	E 12
2555	D 5	2562	D 7	3553	E 10	3560	D 6	3567	D 12	3577	E 3	3586	F 6	7552	G 11	M503	H 4	M510	D 6	M517	D 12
2556	E 3	2563	G 12	3554	G 9	3561	G 12	3568	D 12	3578	F 12	3587	F 5	7553	G 11	M504	H 4	M511	D 7		



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PARTS LIST

Miscellaneous

0014	4822 736 16612	DIRECTIONS FOR USE	D.F.U. 22DC398/75
0015	4822 736 16606	DIRECTIONS FOR USE	D.F.U. 22DC398/75 ONSTAR
1000	4822 210 10729	TUNER	TUNER IC96
1050	4822 242 10999	CRYSTAL	4,332MHz
1250	4822 320 12573	CABLE, CONNECTING	20 FOLD
1251	4822 320 12574	CABLE, CONNECTING	8 FOLD
1252	4822 265 11395	CONNECTOR	CONN. 8P
1300	4822 242 11001	CRYSTAL	4MHz
1400	4822 242 10398	CRYSTAL	TJ125DHB2 (32,768kHz)
1500	4822 265 11497	CONNECTOR	CONN. 13P
1501	4822 265 11498	CONNECTOR	10P
1502	4822 265 11497	CONNECTOR	CONN. 13P
1503	5322 266 30331	CONNECTOR	CON BM V 6P F EM 215079 B
1550	4822 265 11499	CONNECTOR	CONN. BLOCK DC398/75

--------- Connector block PWB ----------

2923	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2924	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2925	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2926	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2927	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2928	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2929	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2930	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2931	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2932	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2933	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2934	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
2935	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2936	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
2937	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
2939	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2940	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2941	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2942	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2943	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2944	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2945	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2946	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2947	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2948	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2949	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
2950	4822 126 14334	CERAMIC SMD	4,7nF 10% 0805 X7R 100V
3901	4822 051 20121	RESISTOR, FIXED	120R 5% 0,1W
5925	4822 157 71206	FILTER, L/C	BLM21A601SPT

1760	4822 267 40818	CONNECTOR	TCS83S9V1 BURNDY
1850	4822 267 51441	CONNECTOR	52271-1390
1875	4822 267 51441	CONNECTOR	52271-1390

Capacitors

2000	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2003	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2004	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2005	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2007	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2010	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2050	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2051	5322 122 32448	CERAMIC SMD	10pF 5% 50V
2052	5322 122 32448	CERAMIC SMD	10pF 5% 50V
2053	5322 122 32654	CERAMIC SMD	22nF 10% X7R 63V
2054	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2055	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2056	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2057	5322 122 33538	CERAMIC SMD	150pF 2% NP0 63V
2058	5322 122 33538	CERAMIC SMD	150pF 2% NP0 63V
2059	5322 122 33538	CERAMIC SMD	150pF 2% NP0 63V
2060	5322 122 33538	CERAMIC SMD	150pF 2% NP0 63V
2061	4822 126 13692	CERAMIC SMD	47pF 1% NP0 63V
2062	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2063	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2064	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2065	4822 126 13691	CERAMIC SMD	27pF 1% NP0 63V
2066	4822 126 13692	CERAMIC SMD	47pF 1% NP0 63V
2067	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2068	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2069	5322 122 32448	CERAMIC SMD	10pF 5% 50V
2070	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2071	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2072	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2073	4822 124 12171	ELECTROLYTIC ALU.	2,2uF 20% 50V
2074	4822 124 23237	ELECTROLYTIC ALU.	22uF 6,3V
2075	4822 124 23237	ELECTROLYTIC ALU.	22uF 6,3V
2076	4822 124 12171	ELECTROLYTIC ALU.	2,2uF 20% 50V
2077	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2078	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2100	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2101	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2102*	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2102**	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2103*	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2103**	4822 126 12104	CERAMIC SMD	12nF 5% X7R 63V
2104	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2105	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2106	4822 122 32627	CERAMIC WITH WIRES	2,7nF 10% X7R 50V
2107	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2108	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2109	4822 124 11884	ELECTROLYTIC ALU.	47nF 10% 0805 X7R 16V
2110*	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2110**	4822 126 12104	CERAMIC SMD	12nF 5% X7R 63V
2111	4822 122 32627	CERAMIC WITH WIRES	2,7nF 10% X7R 50V
2112	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2113	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2114	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2115	4822 126 13851	CERAMIC SMD	68nF 10% 16V
2116	4822 126 12105	CERAMIC SMD	33nF 5% X7R 63V
2117	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2118	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2119	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2120*	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2120**	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2122	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2123	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2124	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2125	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2126	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2127	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2128	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2129	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2130	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2131	4822 124 80765	ELECTROLYTIC ALU.	4,7uF 20% 35V

* *only for 22DC398/75*
** *only for 22DC398/75B*

2132	4822 124 23582	ELECTROLYTIC ALU.	220uF 10V
2133	4822 124 23279	ELECTROLYTIC ALU.	22uF 20% 16V
2134	4822 124 23282	ELECTROLYTIC ALU.	1uF 20% 50V
2135	4822 124 23282	ELECTROLYTIC ALU.	1uF 20% 50V
2136	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2137	4822 126 12105	CERAMIC SMD	33nF 5% X7R 63V
2138	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2139	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2140	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2141	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2144**	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2145**	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2146	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2200	4822 124 22652	ELECTROLYTIC ALU.	2,2uF 20% 50V
2201	4822 124 22652	ELECTROLYTIC ALU.	2,2uF 20% 50V
2202**	4822 124 22652	ELECTROLYTIC ALU.	2,2uF 20% 50V
2203	5322 124 21391	ELECTROLYTIC ALU.	47uF 20% 10V
2204**	4822 124 22652	ELECTROLYTIC ALU.	2,2uF 20% 50V
2205	4822 124 11947	ELECTROLYTIC ALU.	10uF 20% 16V
2206	4822 124 22651	ELECTROLYTIC ALU.	1,0uF 20% 50V
2207	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2208	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2209	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2210	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2211	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2212	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2213	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2214	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2215	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2216*	5322 122 32654	CERAMIC SMD	22nF 10% X7R 63V
2217*	5322 122 32654	CERAMIC SMD	22nF 10% X7R 63V
2250	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2251	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2252	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2253	5322 122 32448	CERAMIC SMD	10pF 5% 50V
2254	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2255	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2256	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2257	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2258	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2259	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2260	4822 126 13691	CERAMIC SMD	27pF 1% NP0 63V
2261	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2262	4822 124 11884	ELECTROLYTIC ALU.	47nF 10% 0805 X7R 16V
2263	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2300	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2301	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V
2302	4822 122 32627	CERAMIC WITH WIRES	2,7nF 10% X7R 50V
2303	4822 126 13691	CERAMIC SMD	27pF 1% NP0 63V
2304	5322 122 32659	CERAMIC SMD	33pF 5% 50V
2305	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2306	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2307	4822 122 32627	CERAMIC WITH WIRES	2,7nF 10% X7R 50V
2308	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V
2309	4822 122 32627	CERAMIC WITH WIRES	2,7nF 10% X7R 50V
2310	4822 124 23237	ELECTROLYTIC ALU.	22uF 6,3V
2311	4822 126 12105	CERAMIC SMD	33nF 5% X7R 63V
2312	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V
2320	4822 124 23282	ELECTROLYTIC ALU.	1uF 20% 50V
2321	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V

* *only for 22DC398/75*
** *only for 22DC398/75B*

2322	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2323	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2324	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2325	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2326	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2327	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2328	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2332	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2333	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2334	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2335	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2400	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2402	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2403	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2404	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2405	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2406	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
2407	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2408	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2409	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2410	4822 124 80453	ELECTROLYTIC ALU.	100uF 20% 10V
2411	4822 126 13486	CERAMIC SMD	15pF 2% NP0 63V
2412	4822 126 13486	CERAMIC SMD	15pF 2% NP0 63V
2413	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2414	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2415	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2416	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2417	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V
2418	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2450	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
2451	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
2452	5322 124 21391	ELECTROLYTIC ALU.	47uF 20% 10V
2453	5322 124 21391	ELECTROLYTIC ALU.	47uF 20% 10V
2455	4822 124 41097	ELECTROLYTIC ALU.	220uF 20% 16V
2456	4822 124 41643	ELECTROLYTIC ALU.	100uF 20% 16V DIM:6,3X11mm
2457	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
2458	4822 126 12105	CERAMIC SMD	33nF 5% X7R 63V
2461	4822 124 23255	ELECTROLYTIC ALU.	100uF 16V
2462	4822 126 13473	CERAMIC SMD	220nF 20% 50V
2463	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2464	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2465	4822 126 13473	CERAMIC SMD	220nF 20% 50V
2466	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2467	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2468	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2469	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2470	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2471	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2472	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2473	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2474	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2475	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2476	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2477	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2478	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2479**	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2500	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2501	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2502	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2503	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V

2504	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2505	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2506	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2507	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2508	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2509	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2510	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2511	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2512	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2513	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2514	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2515	4822 124 41097	ELECTROLYTIC ALU.	220uF 20% 16V
2516	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2550	5322 122 32654	CERAMIC SMD	22nF 10% X7R 6
2551	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2552	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2553	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2554	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2555*	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ
2556	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2557*	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ
2558**	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
2559**	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
2560	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2561	4822 122 33216	CERAMIC SMD	270pF 5% NP0 5
2562	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2563	5322 122 32531	CERAMIC SMD	100pF 5% NP0 5
2564	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2565	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2700	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2701	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2702	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2703	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2704	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2705	5322 122 32531	CERAMIC SMD	100pF 5% NP0 5
2706	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2707	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2708	5322 122 32531	CERAMIC SMD	100pF 5% NP0 5
2709	5322 122 32531	CERAMIC SMD	100pF 5% NP0 5
2710	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R
2711	5322 122 34098	CERAMIC SMD	10nF 10% X7R 6
2712	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2713	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R
2714	4822 126 13689	CERAMIC SMD	18pF 1% NP0 6
2715	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2716	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2717	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2718	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2719	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2720	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2722	4822 126 13196	CERAMIC SMD	100nF 10% 0805
2723	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2724	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R
2725	5322 122 34123	CERAMIC SMD	1nF 10% X7R 5
2726	4822 124 23504	ELECTROLYTIC ALU.	2,2uF 20% 50V
2727	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2728	4822 124 22646	ELECTROLYTIC ALU.	47uF 20% 16V
2729	4822 124 22646	ELECTROLYTIC ALU.	47uF 20% 16V
2730	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2732	4822 126 13689	CERAMIC SMD	18pF 1% NP0 6

	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	4822 124 80453	ELECTROLYTIC ALU.	100uF 20% 10V
	4822 126 13486	CERAMIC SMD	15pF 2% NP0 63V
	4822 126 13486	CERAMIC SMD	15pF 2% NP0 63V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
	5322 124 21391	ELECTROLYTIC ALU.	47uF 20% 10V
	5322 124 21391	ELECTROLYTIC ALU.	47uF 20% 10V
	4822 124 41097	ELECTROLYTIC ALU.	220uF 20% 16V
	4822 124 41643	ELECTROLYTIC ALU.	100uF 20% 16V DIM:6,3X11mm
	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
	4822 126 12105	CERAMIC SMD	33nF 5% X7R 63V
	4822 124 23255	ELECTROLYTIC ALU.	100uF 16V
	4822 126 13473	CERAMIC SMD	220nF 20% 50V
	4822 126 14043	CERAMIC SMD	1uF 20% 16V
	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
	4822 126 13473	CERAMIC SMD	220nF 20% 50V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
**	4822 126 13849	CERAMIC SMD	220nF 10% 16V
	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
	5322 116 80853	CERAMIC SMD	560pF 5% NP0 63V

2504	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2505	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2506	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2507	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2508	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2509	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2510	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2511	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2512	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2513	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2514	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2515	4822 124 41097	ELECTROLYTIC ALU.	220uF 20% 16V
2516	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2550	5322 122 32654	CERAMIC SMD	22nF 10% X7R 63V
2551	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2552	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2553	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2554	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2555*	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
2556	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2557*	4822 124 12357	ELECTROLYTIC ALU.	2200uF 20% VZ 16V
2558**	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
2559**	4822 124 81195	ELECTROLYTIC ALU.	100uF 20% 16V
2560	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2561	4822 122 33216	CERAMIC SMD	270pF 5% NP0 50V
2562	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2563	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2564	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2565	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2700	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2701	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2702	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2703	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2704	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2705	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2706	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2707	4822 126 13849	CERAMIC SMD	220nF 10% 16V
2708	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2709	5322 122 32531	CERAMIC SMD	100pF 5% NP0 50V
2710	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2711	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2712	4822 126 14043	CERAMIC SMD	1uF 20% 16V
2713	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2714	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2715	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2716	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2717	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2718	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2719	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2720	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2722	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2723	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2724	4822 122 32566	CERAMIC SMD	3,9nF 10% X7R 63V
2725	5322 122 34123	CERAMIC SMD	1nF 10% X7R 50V
2726	4822 124 23504	ELECTROLYTIC ALU.	2,2uF 20% 50V
2727	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2728	4822 124 22646	ELECTROLYTIC ALU.	47uF 20% 16V
2729	4822 124 22646	ELECTROLYTIC ALU.	47uF 20% 16V
2730	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2732	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V

2733	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2734	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2735	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2736	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2737	4822 126 13689	CERAMIC SMD	18pF 1% NP0 63V
2762	5322 122 32268	CERAMIC SMD	470pF 10% 50V
2763	5322 122 32268	CERAMIC SMD	470pF 10% 50V
2764	5322 122 32268	CERAMIC SMD	470pF 10% 50V
2765	5322 122 32268	CERAMIC SMD	470pF 10% 50V
2766	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2767	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2769	4822 126 13188	CERAMIC SMD	15nF 5% X7R 63V
2770	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2771	5322 126 10223	CERAMIC SMD	4,7nF 10% X7R 63V
2773	4822 126 13196	CERAMIC SMD	100nF 10% 0805 X7R 25V
2774	4822 126 13188	CERAMIC SMD	15nF 5% X7R 63V
2775	5322 122 34098	CERAMIC SMD	10nF 10% X7R 63V
2776	5322 122 32654	CERAMIC SMD	22nF 10% X7R 63V
2777	4822 124 80453	ELECTROLYTIC ALU.	100uF 20% 10V
2778	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V
2779	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2780	4822 124 80453	ELECTROLYTIC ALU.	100uF 20% 10V
2781	4822 124 41017	ELECTROLYTIC ALU.	10uF 16V
2782	4822 126 14539	CERAMIC SMD	330nF 10% X7R 0805 16V

Resistors

3000	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3001	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3002	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3003	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3004	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3005	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3006	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3007	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3008	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3009	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3010	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3050	4822 051 20334	RESISTOR, FIXED	330k 5% 0,1W
3051	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3052	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3053	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3054	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3055	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3056	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3057	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3058	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3059	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3060	4822 051 20393	RESISTOR, FIXED	39k 5% 0,1W
3061	4822 051 20393	RESISTOR, FIXED	39k 5% 0,1W
3062	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3063	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3064	4822 051 20824	RESISTOR, FIXED	820k 5% 0,1W
3065	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3066	4822 051 20393	RESISTOR, FIXED	39k 5% 0,1W
3067	4822 051 20393	RESISTOR, FIXED	39k 5% 0,1W
3068	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3069	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3070	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3071	4822 051 20225	RESISTOR, FIXED	2M2 5% 0,1W
3072	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3073	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W

3074	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3075	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3076	4822 051 20228	RESISTOR, FIXED	2R2 5% 0,1W
3077	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3104	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3105	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3106	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3107	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3108	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3109	4822 117 11503	RESISTOR, FIXED	220R 1% 0,1W
3110	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3111	4822 051 20182	RESISTOR, FIXED	1k8 5% 0,1W
3112	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3113	4822 051 20182	RESISTOR, FIXED	1k8 5% 0,1W
3114	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3115	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3118	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3119	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3122	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3123	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3124	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3125	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3126	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3127	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3128	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3129	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3130	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3131	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3132	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3133	4822 051 20124	RESISTOR, FIXED	120k 5% 0,1W
3134	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3135	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3136	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3137	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3138	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3139	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3140	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3141	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3142	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3143	4822 117 11503	RESISTOR, FIXED	220R 1% 0,1W
3144	4822 117 10353	RESISTOR, FIXED	150R 1% 0,1W
3145	4822 117 10353	RESISTOR, FIXED	150R 1% 0,1W
3146	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3147	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3148	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3149	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3200*	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3200**	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3201**	4822 117 11454	RESISTOR, CARBON	820R 1% 0,1W
3202*	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3202**	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3203**	4822 117 11454	RESISTOR, CARBON	820R 1% 0,1W
3204*	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3204**	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3205*	4822 051 20008	RESISTOR, FIXED	0R00 JUMP, (0805)
3205**	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3206**	4822 117 11454	RESISTOR, CARBON	820R 1% 0,1W
3207**	4822 117 11454	RESISTOR, CARBON	820R 1% 0,1W
3208	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3209	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W

* *only for 22DC398/75*
** *only for 22DC398/75B*

3210	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3211	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3212	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3213	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3214	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3215	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3216	4822 051 20124	RESISTOR, FIXED	120k 5% 0,1W
3217	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3218	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3219	4822 117 12817	RESISTOR, NON-LINEAR	4k7 5% 0,21W
3220	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3250	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3251	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3252	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3253	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3254	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3255	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3256	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3257	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
3258	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
3259	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3260	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3261	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3262	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3263	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3264	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
3265	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3266	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3267	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3268	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3269	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3300	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3301	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3302	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3304	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3305	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3307	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3308	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3309	4822 051 20225	RESISTOR, FIXED	2M2 5% 0,1W
3310	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3311	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3312	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3320	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3321	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3322	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3323	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3324	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3325	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3326	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3327	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3328	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3329	4822 117 10353	RESISTOR, FIXED	150R 1% 0,1W
3330	4822 117 10353	RESISTOR, FIXED	150R 1% 0,1W
3331	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3332	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3333	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3334	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3400	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3401	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3402	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W

3403	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3404	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3405	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3408	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3409	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3410	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3411	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3412	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3413	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3414	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3415	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3416	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3417	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3418	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3419	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3450	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3451	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3452	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3453	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3454**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3455	4822 117 13586	RESISTOR, FIXED	107R 1% RC12H 0805 0,125W
3456	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3457	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3458	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3459	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3460	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3461**	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3462	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3463**	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3464	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3466	4822 116 10095	RESISTOR, NON-LINEAR	0R11 1812 13V
3467	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3468	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3469**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3470**	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3471	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3472	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3473	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3474	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3475	4822 117 13587	RESISTOR, FIXED	620R 5% PRC201 1218 1W
3476	4822 117 13587	RESISTOR, FIXED	620R 5% PRC201 1218 1W
3478	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3479	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3480**	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3481**	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3482**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3483**	4822 051 20154	RESISTOR, FIXED	150k 5% 0,1W
3484**	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3485**	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3486	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3487	4822 051 20228	RESISTOR, FIXED	2R2 5% 0,1W
3488	4822 051 20333	RESISTOR, FIXED	33k 5% 0,1W
3500	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3501	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3502	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3503	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3504	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3505	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3506	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3507	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W

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0109	RESISTOR, FIXED	10R 5% 0,1W
0101	RESISTOR, FIXED	100R 5% 0,1W
0109	RESISTOR, FIXED	10R 5% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0109	RESISTOR, FIXED	10R 5% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0124	RESISTOR, FIXED	120k 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0472	RESISTOR, FIXED	4k7 5% 0,1W
2817	RESISTOR, NON-LINEAR	4k7 5% 0,21W
0224	RESISTOR, FIXED	220k 5% 0,1W
0332	RESISTOR, FIXED	3k3 5% 0,1W
0332	RESISTOR, FIXED	3k3 5% 0,1W
0332	RESISTOR, FIXED	3k3 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0472	RESISTOR, FIXED	4k7 5% 0,1W
0224	RESISTOR, FIXED	220k 5% 0,1W
1139	RESISTOR, FIXED	1k5 1% 0,1W
0048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
0048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
0101	RESISTOR, FIXED	100R 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0562	RESISTOR, FIXED	5k6 5% 0,1W 0805
0472	RESISTOR, FIXED	4k7 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
0224	RESISTOR, FIXED	220k 5% 0,1W
0104	RESISTOR, FIXED	100k 5% 0,1W
0224	RESISTOR, FIXED	220k 5% 0,1W
0332	RESISTOR, FIXED	3k3 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0471	RESISTOR, FIXED	470R 5% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0833	RESISTOR, FIXED	10k 1% 0,1W
0225	RESISTOR, FIXED	2M2 5% 0,1W
0101	RESISTOR, FIXED	100R 5% 0,1W
0101	RESISTOR, FIXED	100R 5% 0,1W
0101	RESISTOR, FIXED	100R 5% 0,1W
0101	RESISTOR, FIXED	100R 5% 0,1W
2955	RESISTOR, FIXED	2k7 1% 0,1W 0805
2955	RESISTOR, FIXED	2k7 1% 0,1W 0805
0472	RESISTOR, FIXED	4k7 5% 0,1W
0472	RESISTOR, FIXED	4k7 5% 0,1W
2955	RESISTOR, FIXED	2k7 1% 0,1W 0805
2955	RESISTOR, FIXED	2k7 1% 0,1W 0805
1504	RESISTOR, FIXED	270R 1% 0,1W
1504	RESISTOR, FIXED	270R 1% 0,1W
0353	RESISTOR, FIXED	150R 1% 0,1W
0353	RESISTOR, FIXED	150R 1% 0,1W
1504	RESISTOR, FIXED	270R 1% 0,1W
1504	RESISTOR, FIXED	270R 1% 0,1W
0104	RESISTOR, FIXED	100k 5% 0,1W
0224	RESISTOR, FIXED	220k 5% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0834	RESISTOR, FIXED	47k 1% 0,1W
0104	RESISTOR, FIXED	100k 5% 0,1W

3403	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3404	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3405	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3408	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3409	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3410	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3411	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3412	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3413	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3414	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3415	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3416	4822 117 11504	RESISTOR, FIXED	270R 1% 0,1W
3417	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3418	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3419	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3450	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3451	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3452	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3453	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3454**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3455	4822 117 13586	RESISTOR, FIXED	107R 1% RC12H 0805 0,125W
3456	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3457	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3458	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3459	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3460	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3461**	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3462	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3463**	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3464	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3466	4822 116 10095	RESISTOR, NON-LINEAR	0R11 1812 13V
3467	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3468	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3469**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3470**	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3471	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3472	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3473	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3474	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3475	4822 117 13587	RESISTOR, FIXED	620R 5% PRC201 1218 1W
3476	4822 117 13587	RESISTOR, FIXED	620R 5% PRC201 1218 1W
3478	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3479	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3480**	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3481**	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3482**	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3483**	4822 051 20154	RESISTOR, FIXED	150k 5% 0,1W
3484**	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3485**	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3486	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3487	4822 051 20228	RESISTOR, FIXED	2R2 5% 0,1W
3488	4822 051 20333	RESISTOR, FIXED	33k 5% 0,1W
3500	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3501	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3502	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3503	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3504	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3505	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3506	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3507	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W

3508	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3509	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3510	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3511	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3512	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3513	4822 051 20153	RESISTOR, FIXED	15k 5% 0,1W
3514	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3515	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3516	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3517	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3518	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3519	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3520	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3521	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3522	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3523	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3525	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
3526	4822 116 10048	RESISTOR, NON-LINEAR	VDR 0805 1MA/34V MAX 58V
3527	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3528	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3529	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3530	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3531	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3532	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3533	4822 117 11449	RESISTOR, FIXED	2k2 1% 0,1W
3534	4822 117 11449	RESISTOR, FIXED	2k2 1% 0,1W
3535	4822 117 13588	RESISTOR, FIXED	2R2 5% PRC201 1218 1W
3550	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3551	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3552	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3553	4822 117 12869	RESISTOR, FIXED	110R 5% 1W PRC201
3554	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3555	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3556	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3557	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3558	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3559	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3560	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3561	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3562	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3563	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3564	4822 051 20154	RESISTOR, FIXED	150k 5% 0,1W
3565	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3566	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3567	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3568	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3569	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3570	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3571	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3572	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3574**	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3577	4822 051 20154	RESISTOR, FIXED	150k 5% 0,1W
3578	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3581	4822 117 11148	RESISTOR, FIXED	56k 1% 0,1W
3582	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3583	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3584	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3585	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3586	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3587	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W

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3588	4822 051 20684	RESISTOR, FIXED	680k 5% 0,1W
3589	4822 051 20681	RESISTOR, FIXED	680R 5% 0,1W
3701	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3702	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3703	4822 117 11503	RESISTOR, FIXED	220R 1% 0,1W
3704	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3705	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3706	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3707	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3708	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3709	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3710	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3712	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3713	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3714	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3715	4822 117 11383	RESISTOR, FIXED	12k 1% 0,1W
3716	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3717	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3718	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3719	4822 051 20223	RESISTOR, FIXED	22k 5% 0,1W
3720	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3722	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3724	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3725	4822 051 20224	RESISTOR, FIXED	220k 5% 0,1W
3726	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3727	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3728	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3729	4822 117 10353	RESISTOR, FIXED	150R 1% 0,1W
3730	4822 051 20332	RESISTOR, FIXED	3k3 5% 0,1W
3735	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3736	4822 117 12955	RESISTOR, FIXED	2k7 1% 0,1W 0805
3739	4822 051 20102	RESISTOR, FIXED	1k 5% 0,1W
3740	4822 051 20101	RESISTOR, FIXED	100R 5% 0,1W
3760	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3761	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3762	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3763	4822 051 20184	RESISTOR, FIXED	180k 5% 0,1W
3764	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3765	4822 051 20562	RESISTOR, FIXED	5k6 5% 0,1W 0805
3766	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3767	4822 117 10833	RESISTOR, FIXED	10k 1% 0,1W
3768	4822 051 20109	RESISTOR, FIXED	10R 5% 0,1W
3769	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3770	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3772	4822 117 10965	RESISTOR, FIXED	18k 1% 0,1W
3773	4822 051 20184	RESISTOR, FIXED	180k 5% 0,1W
3774	4822 117 10507	RESISTOR, FIXED	24k 1% 0,1W
3775	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3776	4822 051 20822	RESISTOR, FIXED	8k2 5% 0,1W
3777	4822 051 20274	RESISTOR, FIXED	270k 5% 0,1W
3778	4822 051 20274	RESISTOR, FIXED	270k 5% 0,1W
3779	4822 117 11139	RESISTOR, FIXED	1k5 1% 0,1W
3780	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W
3781	4822 051 20274	RESISTOR, FIXED	270k 5% 0,1W
3782	4822 051 20471	RESISTOR, FIXED	470R 5% 0,1W
3783	4822 051 20184	RESISTOR, FIXED	180k 5% 0,1W
3784	4822 117 10507	RESISTOR, FIXED	24k 1% 0,1W
3785	4822 051 20822	RESISTOR, FIXED	8k2 5% 0,1W
3786	4822 051 20274	RESISTOR, FIXED	270k 5% 0,1W
3787	4822 117 10834	RESISTOR, FIXED	47k 1% 0,1W

* *only for 22DC398/75*
** *only for 22DC398/75B*

3788	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W
3789	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3790	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3791	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3792	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W
3793	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3794	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W
3795	4822 101 11187	RESISTOR, VARIAB.	1k 30%LIN 0,1W
3796	4822 101 11187	RESISTOR, VARIAB.	1k 30%LIN 0,1W
4700	4822 051 20008	RESISTOR, FIXED	0R00 JUMP. (0805)

Coils

5000	4822 157 71206	FILTER, L/C	BLM21A601SPT
5001	4822 157 71206	FILTER, L/C	BLM21A601SPT
5250	4822 157 71206	FILTER, L/C	BLM21A601SPT
5300	4822 157 71206	FILTER, L/C	BLM21A601SPT
5400	4822 157 71206	FILTER, L/C	BLM21A601SPT
5401	4822 157 11822	FILTER, L/C	51uH 250V
5450	4822 157 70935	COIL	COIL ASSY 97uH 10A
5700	4822 157 71206	FILTER, L/C	BLM21A601SPT

Diodes

6050	5322 130 34337		BAV99
6051	5322 130 34337		BAV99
6100	4822 130 10654		BAT254
6400	4822 130 83757		BAS216
6451	4822 130 10655	POWER RECTIFIER	1SR154-400
6453**	4822 130 83757		BAS216
6454	4822 130 83757		BAS216
6455**	4822 130 83757		BAS216
6456	4822 130 83757		BAS216
6457	4822 130 83757		BAS216
6458	4822 130 80751	POWER RECTIFIER	1S1885A
6459**	5322 130 34331		BAV70
6500	4822 130 10185	REFERENCE	UDZ5.6B
6501	4822 130 10185	REFERENCE	UDZ5.6B
6502	4822 130 10185	REFERENCE	UDZ5.6B
6503	4822 130 10185	REFERENCE	UDZ5.6B
6504	4822 130 10185	REFERENCE	UDZ5.6B
6505	4822 130 10185	REFERENCE	UDZ5.6B
6506	4822 130 10185	REFERENCE	UDZ5.6B
6507	4822 130 10185	REFERENCE	UDZ5.6B
6508	4822 130 10185	REFERENCE	UDZ5.6B
6509	4822 130 10185	REFERENCE	UDZ5.6B
6510	4822 130 10185	REFERENCE	UDZ5.6B
6511	4822 130 10185	REFERENCE	UDZ5.6B
6550	4822 051 20008	RESISTOR, FIXED	0R00 JUMP. (0805)

Transistors and IC's

7000	4822 130 42132	TRANSISTOR, <1W	BC807
7001	4822 130 60511	TRANSISTOR, <1W	BC847B
7050	4822 209 15824	IC ANA OTHERS	TDA7331
7051	4822 209 15823	IC ANA AMPLIFIER	TL074ID
7052	4822 130 60511	TRANSISTOR, <1W	BC847B
7100	4822 209 12723	IC DIG MOS INTERFACE	TDA7342
7101	4822 209 16208	IC ANA AMPLIFIER	TL072ID
7103	4822 130 60511	TRANSISTOR, <1W	BC847B
7104	4822 130 60511	TRANSISTOR, <1W	BC847B
7200	4822 209 33629	IC ANA AMPLIFIER	TDA7375
7201	4822 130 60511	TRANSISTOR, <1W	BC847B
7250	4822 130 60511	TRANSISTOR, <1W	BC847B
7251	4822 130 60511	TRANSISTOR, <1W	BC847B
7252	4822 130 42132	TRANSISTOR, <1W	BC807

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7253	4822 130 60511	TRANSISTOR, <1W	BC847B
7254	5322 130 60508	TRANSISTOR, <1W	BC857B
7300	4822 209 17248	MOS U COMP 16B	SAF-C167CR-LM
7301	4822 209 17249	MOS SRAM <=256kB	UPD43256BGW-8
7302	4822 209 17251	MOS EEPROM	M28C64-120K6
7303	4822 209 17252	MOS EPROM >4MB	M27C4002-80C6
7400	4822 130 60511	TRANSISTOR, <1W	BC847B
7401	4822 209 15196	IC DIG MOS OTHERS	PCA82C250
7402	4822 209 16279	IC DIG MOS OTHERS	SAA1305T
7403	5322 130 60508	TRANSISTOR, <1W	BC857B
7450	4822 130 60511	TRANSISTOR, <1W	BC847B
7451	4822 130 60511	TRANSISTOR, <1W	BC847B
7452	5322 130 60508	TRANSISTOR, <1W	BC857B
7453**	4822 130 42132	TRANSISTOR, <1W	BC807
7454**	4822 130 60511	TRANSISTOR, <1W	BC847B
7455	4822 209 17253	VOLT./CURR. REGULATOR	LT1085CT
7456	4822 209 15979	IC DIG MOS OTHERS	VN02NSP
7457	4822 209 17254	VOLT./CURR. REGULATOR	TDA3608Q/N1
7458**	5322 130 60508	TRANSISTOR, <1W	BC857B
7459**	4822 130 60511	TRANSISTOR, <1W	BC847B
7500	4822 130 42132	TRANSISTOR, <1W	BC807
7501	4822 130 42615	TRANSISTOR, <1W	BC817-40
7502	4822 130 60511	TRANSISTOR, <1W	BC847B
7550	4822 130 60511	TRANSISTOR, <1W	BC847B
7551	4822 130 60511	TRANSISTOR, <1W	BC847B
7552	4822 130 42615	TRANSISTOR, <1W	BC817-40
7553	4822 130 60511	TRANSISTOR, <1W	BC847B
7554	5322 130 60508	TRANSISTOR, <1W	BC857B
7555	4822 130 60511	TRANSISTOR, <1W	BC847B
7700	4822 130 60511	TRANSISTOR, <1W	BC847B
7701	4822 130 60511	TRANSISTOR, <1W	BC847B
7703	4822 130 60511	TRANSISTOR, <1W	BC847B
7704	4822 130 60511	TRANSISTOR, <1W	BC847B
7706	5322 209 14542	MOS STANDARD LOGIC	HEF4066BT
7707	4822 209 15978	IC ANA AMPLIFIER	TDA8578T/N1
7708	4822 209 30095	IC ANA AMPLIFIER	LM833D
7760	4822 130 60511	TRANSISTOR, <1W	BC847B
7761	4822 209 15585	IC ANA OTHERS	TEA0675T/V2
7762	5322 130 60508	TRANSISTOR, <1W	BC857B
7763	4822 130 60511	TRANSISTOR, <1W	BC847B
7764	4822 130 60511	TRANSISTOR, <1W	BC847B

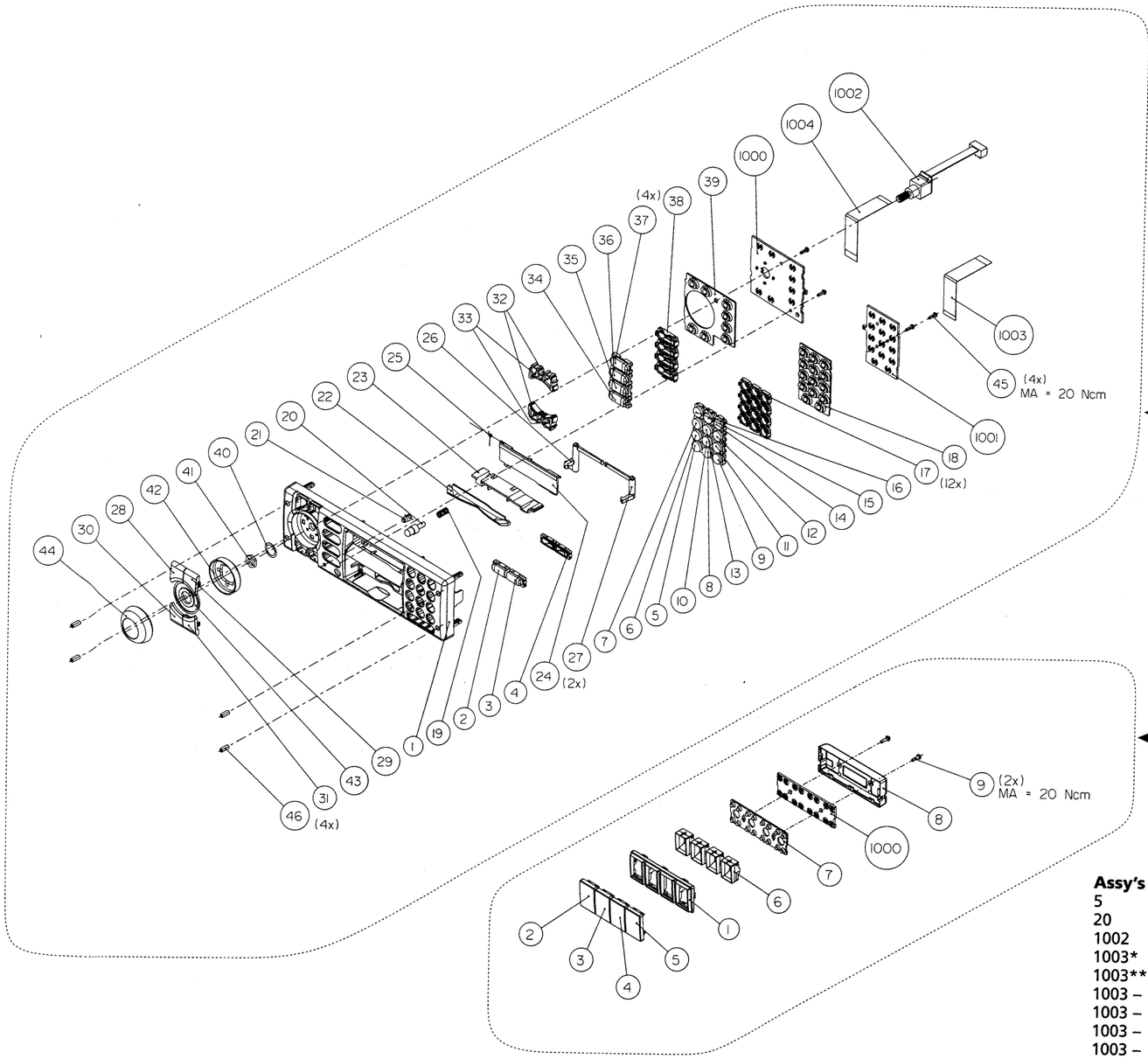
Assy's and mechanical parts

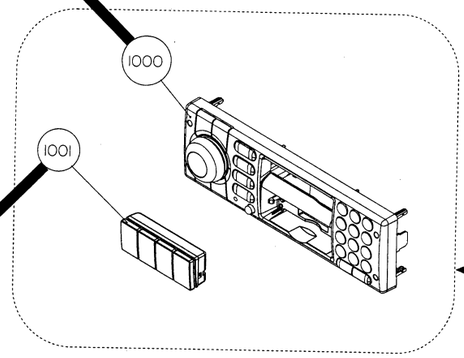
5	4822 267 31697	CONNECTOR, COAXIAL	BUSH AERIAL AS
20	4822 492 71046	SPRING	SPRING MOUTIN
1002	4822 691 10726	TAPE DECK	SCA-R3.3 (PACKE
1003*	4822 459 05188	FRONT PANEL, PLASTIC	UNIT FRONT ASS
1003**	4822 459 05191	FRONT PANEL, PLASTIC	UNIT FRONT ASS
24	4822 443 11126	DOOR, PLASTIC	FLAP CASSETTE
25	4822 492 42533	SPRING	SPRING CASSETTI
44	4822 410 12164	KNOB, PLASTIC	KNOB ASM
1850	4822 267 51441	CONNECTOR	52271-1390
1875	4822 267 51441	CONNECTOR	52271-1390
1002	4822 218 12021	POT	INCREMENT ASSY
1003	4822 320 12582	FLEXIBLE FOIL	CABLE FLEX 13-F
1004	4822 320 12582	FLEXIBLE FOIL	CABLE FLEX 13-F
1001	4822 459 05189	FRONT, DETACHABLE	UNIT DETACHABI
1004	4822 218 11989	ELECTR. UNIT	UNIT GSM ASSY
1005	4822 691 10767	MECH. UNIT	UNIT CARD-REAI
1006	4822 492 11712	SPRING	SPRING GROUND

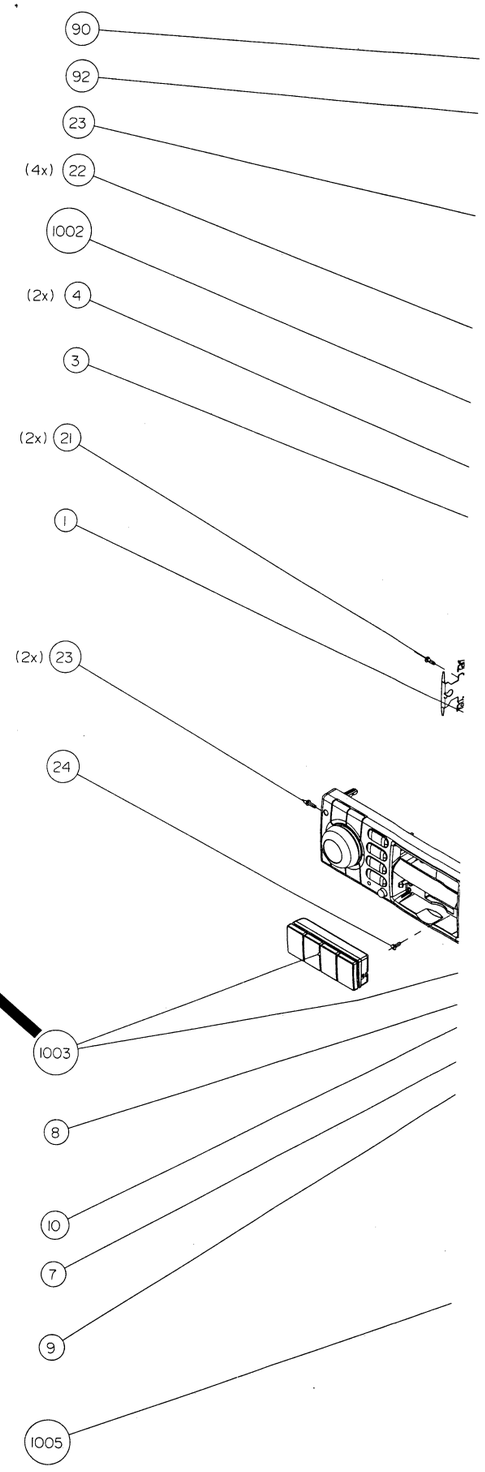
3	4822 051 20472	RESISTOR, FIXED	4k7 5% 0,1W	
)	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W	
)	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W	
	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W	
!	4822 051 20104	RESISTOR, FIXED	100k 5% 0,1W	
3	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W	
4	4822 117 11449	RESISTOR, CARBON	2k2 1% 0,1W	
5	4822 101 11187	RESISTOR, VARIAB.	1k 30%LIN 0,1W	
5	4822 101 11187	RESISTOR, VARIAB.	1k 30%LIN 0,1W	
)	4822 051 20008	RESISTOR, FIXED	0R00 JUMP. (0805)	
s				
)	4822 157 71206	FILTER, L/C	BLM21A601SPT	
	4822 157 71206	FILTER, L/C	BLM21A601SPT	
)	4822 157 71206	FILTER, L/C	BLM21A601SPT	
)	4822 157 71206	FILTER, L/C	BLM21A601SPT	
)	4822 157 71206	FILTER, L/C	BLM21A601SPT	
	4822 157 11822	FILTER, L/C	51uH 250V	
)	4822 157 70935	COIL	COIL ASSY 97uH 10A	
)	4822 157 71206	FILTER, L/C	BLM21A601SPT	
des				
)	5322 130 34337		BAV99	
	5322 130 34337		BAV99	
)	4822 130 10654		BAT254	
)	4822 130 83757		BAS216	
	4822 130 10655	POWER RECTIFIER	1SR154-400	
3**	4822 130 83757		BAS216	
4	4822 130 83757		BAS216	
5**	4822 130 83757		BAS216	
5	4822 130 83757		BAS216	
7	4822 130 83757		BAS216	
3	4822 130 80751	POWER RECTIFIER	1S1885A	
9**	5322 130 34331		BAV70	
)	4822 130 10185	REFERENCE	UDZ5.6B	
	4822 130 10185	REFERENCE	UDZ5.6B	
2	4822 130 10185	REFERENCE	UDZ5.6B	
3	4822 130 10185	REFERENCE	UDZ5.6B	
4	4822 130 10185	REFERENCE	UDZ5.6B	
5	4822 130 10185	REFERENCE	UDZ5.6B	
5	4822 130 10185	REFERENCE	UDZ5.6B	
7	4822 130 10185	REFERENCE	UDZ5.6B	
3	4822 130 10185	REFERENCE	UDZ5.6B	
9	4822 130 10185	REFERENCE	UDZ5.6B	
)	4822 130 10185	REFERENCE	UDZ5.6B	
	4822 130 10185	REFERENCE	UDZ5.6B	
)	4822 051 20008	RESISTOR, FIXED	0R00 JUMP. (0805)	
sistors and IC's				
)	4822 130 42132	TRANSISTOR, <1W	BC807	
	4822 130 60511	TRANSISTOR, <1W	BC847B	
)	4822 209 15824	IC ANA OTHERS	TDA7331	
	4822 209 15823	IC ANA AMPLIFIER	TL074ID	
2	4822 130 60511	TRANSISTOR, <1W	BC847B	
)	4822 209 12723	IC DIG MOS INTERFACE	TDA7342	
	4822 209 16208	IC ANA AMPLIFIER	TL072ID	
3	4822 130 60511	TRANSISTOR, <1W	BC847B	
4	4822 130 60511	TRANSISTOR, <1W	BC847B	
)	4822 209 33629	IC ANA AMPLIFIER	TDA7375	
	4822 130 60511	TRANSISTOR, <1W	BC847B	
)	4822 130 60511	TRANSISTOR, <1W	BC847B	
	4822 130 60511	TRANSISTOR, <1W	BC847B	
2	4822 130 42132	TRANSISTOR, <1W	BC807	

7253	4822 130 60511	TRANSISTOR, <1W	BC847B	
7254	5322 130 60508	TRANSISTOR, <1W	BC857B	
7300	4822 209 17248	MOS U COMP 16B	SAF-C167CR-LM	
7301	4822 209 17249	MOS SRAM <=256kB	UPD43256BGW-85X-9JL	
7302	4822 209 17251	MOS EEPROM	M28C64-120K6	
7303	4822 209 17252	MOS EPROM >4MB	M27C4002-80C6	
7400	4822 130 60511	TRANSISTOR, <1W	BC847B	
7401	4822 209 15196	IC DIG MOS OTHERS	PCA82C250	
7402	4822 209 16279	IC DIG MOS OTHERS	SAA1305T	
7403	5322 130 60508	TRANSISTOR, <1W	BC857B	
7450	4822 130 60511	TRANSISTOR, <1W	BC847B	
7451	4822 130 60511	TRANSISTOR, <1W	BC847B	
7452	5322 130 60508	TRANSISTOR, <1W	BC857B	
7453**	4822 130 42132	TRANSISTOR, <1W	BC807	
7454**	4822 130 60511	TRANSISTOR, <1W	BC847B	
7455	4822 209 17253	VOLT./CURR. REGULATOR	LT1085CT	
7456	4822 209 15979	IC DIG MOS OTHERS	VN02NSP	
7457	4822 209 17254	VOLT./CURR. REGULATOR	TDA3608Q/N1	
7458**	5322 130 60508	TRANSISTOR, <1W	BC857B	
7459**	4822 130 60511	TRANSISTOR, <1W	BC847B	
7500	4822 130 42132	TRANSISTOR, <1W	BC807	
7501	4822 130 42615	TRANSISTOR, <1W	BC817-40	
7502	4822 130 60511	TRANSISTOR, <1W	BC847B	
7550	4822 130 60511	TRANSISTOR, <1W	BC847B	
7551	4822 130 60511	TRANSISTOR, <1W	BC847B	
7552	4822 130 42615	TRANSISTOR, <1W	BC817-40	
7553	4822 130 60511	TRANSISTOR, <1W	BC847B	
7554	5322 130 60508	TRANSISTOR, <1W	BC857B	
7555	4822 130 60511	TRANSISTOR, <1W	BC847B	
7700	4822 130 60511	TRANSISTOR, <1W	BC847B	
7701	4822 130 60511	TRANSISTOR, <1W	BC847B	
7703	4822 130 60511	TRANSISTOR, <1W	BC847B	
7704	4822 130 60511	TRANSISTOR, <1W	BC847B	
7706	5322 209 14542	MOS STANDARD LOGIC	HEF4066BT	
7707	4822 209 15978	IC ANA AMPLIFIER	TDA8578T/N1	
7708	4822 209 30095	IC ANA AMPLIFIER	LM833D	
7760	4822 130 60511	TRANSISTOR, <1W	BC847B	
7761	4822 209 15585	IC ANA OTHERS	TEA0675T/V2	
7762	5322 130 60508	TRANSISTOR, <1W	BC857B	
7763	4822 130 60511	TRANSISTOR, <1W	BC847B	
7764	4822 130 60511	TRANSISTOR, <1W	BC847B	
Assy's and mechanical parts				
5	4822 267 31697	CONNECTOR, COAXIAL	BUSH AERIAL ASSY	
20	4822 492 71046	SPRING	SPRING MOUTING	
1002	4822 691 10726	TAPE DECK	SCA-R3.3 (PACKED)	
1003*	4822 459 05188	FRONT PANEL, PLASTIC	UNIT FRONT ASSY 22DC398/75	
1003**	4822 459 05191	FRONT PANEL, PLASTIC	UNIT FRONT ASSY BOSE	
24	4822 443 11126	DOOR, PLASTIC	FLAP CASSETTE	
25	4822 492 42533	SPRING	SPRING CASSETTE FLAP	
44	4822 410 12164	KNOB, PLASTIC	KNOB ASM	
1850	4822 267 51441	CONNECTOR	52271-1390	
1875	4822 267 51441	CONNECTOR	52271-1390	
1002	4822 218 12021	POT	INCREMENT ASSY	
1003	4822 320 12582	FLEXIBLE FOIL	CABLE FLEX 13-F	
1004	4822 320 12582	FLEXIBLE FOIL	CABLE FLEX 13-F	
1001	4822 459 05189	FRONT, DETACHABLE	UNIT DETACHABLE ASSY	
1004	4822 218 11989	ELECTR. UNIT	UNIT GSM ASSY (A1)	
1005	4822 691 10767	MECH. UNIT	UNIT CARD-READER	
1006	4822 492 11712	SPRING	SPRING GROUND CONTACT	

EXPLODED VIEW





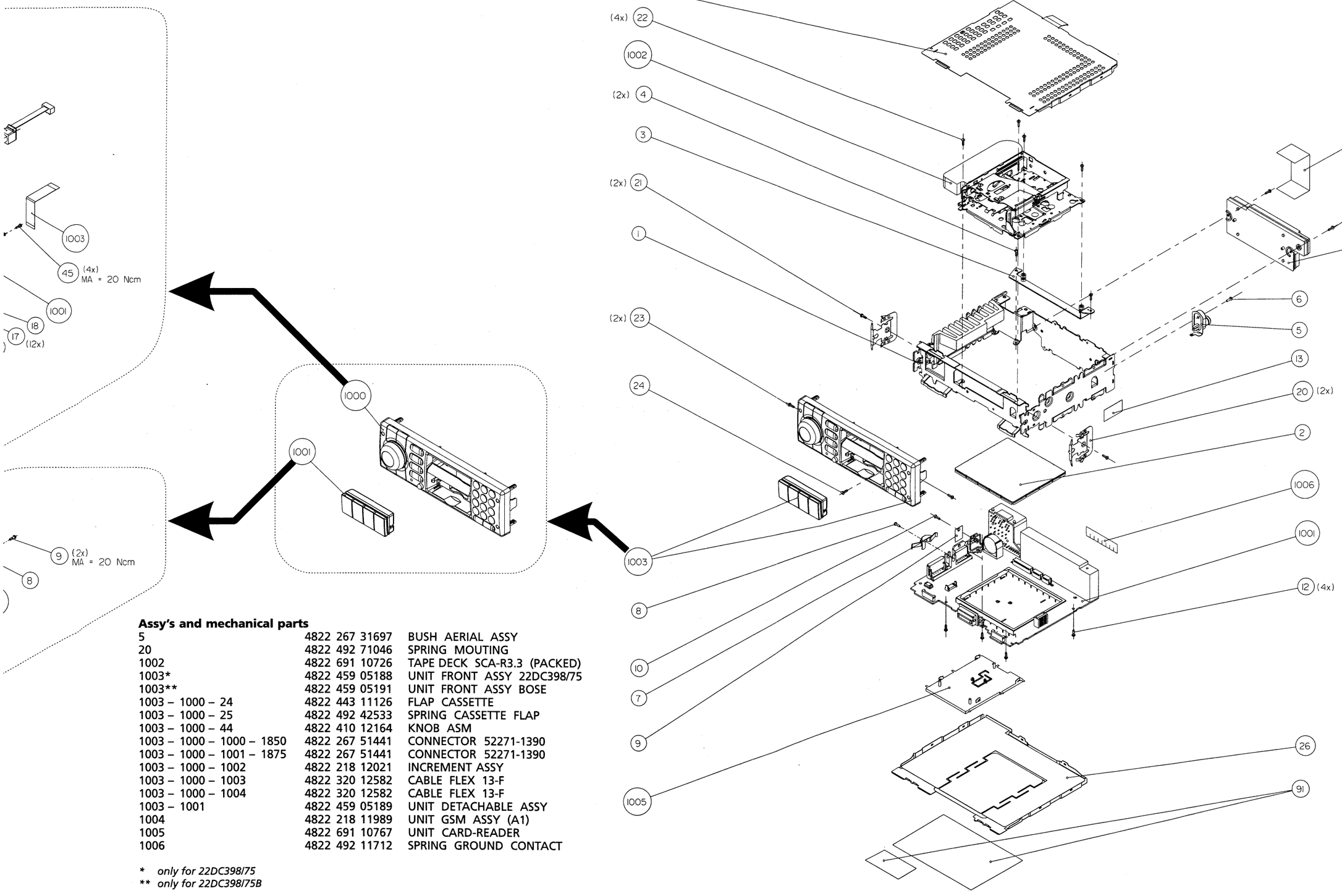


Assy's and mechanical parts

5	4822 267 31697	BUSH AERIAL ASSY
20	4822 492 71046	SPRING MOUTING
1002	4822 691 10726	TAPE DECK SCA-R3.3 (PACKED)
1003*	4822 459 05188	UNIT FRONT ASSY 22DC398/75
1003**	4822 459 05191	UNIT FRONT ASSY BOSE
1003 – 1000 – 24	4822 443 11126	FLAP CASSETTE
1003 – 1000 – 25	4822 492 42533	SPRING CASSETTE FLAP
1003 – 1000 – 44	4822 410 12164	KNOB ASM
1003 – 1000 – 1000 – 1850	4822 267 51441	CONNECTOR 52271-1390
1003 – 1000 – 1001 – 1875	4822 267 51441	CONNECTOR 52271-1390
1003 – 1000 – 1002	4822 218 12021	INCREMENT ASSY
1003 – 1000 – 1003	4822 320 12582	CABLE FLEX 13-F
1003 – 1000 – 1004	4822 320 12582	CABLE FLEX 13-F
1003 – 1001	4822 459 05189	UNIT DETACHABLE ASSY
1004	4822 218 11989	UNIT GSM ASSY (A1)
1005	4822 691 10767	UNIT CARD-READER
1006	4822 492 11712	SPRING GROUND CONTACT

* *only for 22DC398/75*
** *only for 22DC398/75B*

22 DC 398/75



Assy's and mechanical parts

5	4822 267 31697	BUSH AERIAL ASSY
20	4822 492 71046	SPRING MOUTING
1002	4822 691 10726	TAPE DECK SCA-R3.3 (PACKED)
1003*	4822 459 05188	UNIT FRONT ASSY 22DC398/75
1003**	4822 459 05191	UNIT FRONT ASSY BOSE
1003 – 1000 – 24	4822 443 11126	FLAP CASSETTE
1003 – 1000 – 25	4822 492 42533	SPRING CASSETTE FLAP
1003 – 1000 – 44	4822 410 12164	KNOB ASM
1003 – 1000 – 1000 – 1850	4822 267 51441	CONNECTOR 52271-1390
1003 – 1000 – 1001 – 1875	4822 267 51441	CONNECTOR 52271-1390
1003 – 1000 – 1002	4822 218 12021	INCREMENT ASSY
1003 – 1000 – 1003	4822 320 12582	CABLE FLEX 13-F
1003 – 1000 – 1004	4822 320 12582	CABLE FLEX 13-F
1003 – 1001	4822 459 05189	UNIT DETACHABLE ASSY
1004	4822 218 11989	UNIT GSM ASSY (A1)
1005	4822 691 10767	UNIT CARD-READER
1006	4822 492 11712	SPRING GROUND CONTACT

* *only for 22DC398/75*
** *only for 22DC398/75B*